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[ABRIDGED]

ON THE

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PULMONARY TUBERCULOSIS.

Delivered before the Medical Society of London

BY R. A. YOUNG, C.B.E., M.D., B.SC., F.R.C.P. LOND.,

PHYSICIAN TO THE MIDDLESEX AND BROMPTON HOSPITALS.

LECTURE I.

(Delivered on Feb. 18th.)

THE scourge of tuberculosis has probably been coeval with civilisation, if indeed it does not date from the time when man became gregarious or from that period when he first made an enclosed habitation for himself. In this connexion it is of interest to note that although tuberculosis occurs in many mammals and in some birds, it is rare, if not unknown, in their wild state, and only becomes apparent when they live in association with man, or under conditions of confinement in stalls and zoological gardens. Anthropoids do not contract it in the wild condition, but are extremely susceptible in captivity. These facts are significant in connexion with the incidence of the human disease. Oxen, pigs, the dog, and to a less extent the cat, suffer from this disease, while the horse, sheep, and goat are more refractory. At the same time most mammals are susceptible to inoculation, and even the most refractory seem only to have the power to inhibit the activity of the bacillus, not to destroy it.

The form of acid-fast bacillus occurring in fish, amphibians, and batrachians is probably an entirely different organism. It is only of interest in regard to man from the attempt made by Friedman to utilise it in the treatment of the human disease. The problem of the rôle of the bovine bacillus in producing pathogenic effects in human beings need not be considered at length in regard to the subject I have chosen, since only in children does it seem to have any real incidence, and then its stress falls upon the glands, bones, joints, peritoneum, and meninges. In pulmonary tuberculosis, as seen in the adult and the adolescent, the bacillus found is almost without exception of the human type. At the same time this question raises a pathological point of great importance which may well prove to have practical bearings in regard to treatment. This is the relationship of early bovine infection which is recovered from, to human infection later in life. There is much evidence to support the view that early bovine infection serves as a protection to later infection, except when this occurs in massive doses or under unfavourable conditions.

[The lecturer then dealt with the history of the treatment of tuberculosis from the earliest times to the present day.]

NATURE OF PULMONARY TUBERCULOSIS.

The discovery of the exciting cause of a disease is generally hailed as the harbinger of its cure, and as giving hope of securing its prevention and eradication. The history of the treatment of tuberculous disease since the discovery of the tubercle bacillus by Robert Koch in 1882 shows that such hopes may be vain, and that for effective treatment the fullest knowledge of the causative agent and of its effects may be necessary.

The list of treatments recommended for tuberculosis is an ever-lengthening one. This alone affords little encouragement, for we can, as a rule, judge the efficacy of treatment as inversely proportional to the number of remedies suggested. In this disease there is certainly no lack. They vary from absolute rest to the most strenuous exercise, from life at sea-level to high altitudes and even to balloon ascents, from hyper-alimentation to grape cures, from serum therapy to vaccines of various kinds, from inhalations to intratracheal injections, from silence to singing lessons, and from castration to thoracoplasty. We should aim at being eclectic, and thus securing for each patient that combination of management, locality, and medicinal agents likely to put him in the best condition to secure arrest and to restore him to health and working capacity.

From the prodigious literature relating to this disease, and from the welter of controversy concerning its pathology and treatment, certain generalisations emerge with almost the authority of axioms. These I may here state categorically, with a view to determining whether they afford any rational basis on which we may found our treatment, and whether there is any hope of a specific curative treatment in the future.

(1) Pulmonary tuberculosis is almost exclusively due to the human type of the tubercle bacillus.

(2) It is a disease sui generis and confined to man in its ordinary chronic form. Experimental infections of animals do not reproduce it.

(3) It is practically unknown in infancy, rare in early childhood, and becomes increasingly evident at puberty and in adult life.

(4) Under urban conditions in most countries exposure to infection by the tubercle bacillus is almost universal, either from bovine sources in milk and its derivatives, cream, butter and cheese, or from human sources by sputum or other discharges.

(5) Ninety per cent. of adults give some form or other of tuberculin reaction when tested.

(6) We must not regard the presence of tubercle bacilli within the body as evidence of tuberculous disease, and still less the occurrence of tuberculin reactions. The latter only indicate tuberculin sensitiveness due to previous tuberculinisation, either from bacilli spontaneously acquired or from previous administration of tuberculin.

(7) The converse of this is true—namely, that active progressive lung disease is consistent with a high degree of immunity to subcutaneous injection of tuberculin. This fact has been applied by dealers in the sale of pedigree cattle, and is now made a plea for the official control of the sale of tuberculin.[1]

(8) The development of pulmonary tuberculosis in a given individual indicates that the protective processes are defective, or that the infection has been gross or massive so as to swamp these processes.

(9) These protective processes vary in effectiveness in different individuals and in different races, and are never absolute.

(10) The tubercle bacillus is a very resistant organism in vivo, possibly in virtue of its lipoid rich envelope, and even the animals most refractory to its effects can usually only inhibit or prevent its activities without destroying it.

(11) In resistant individuals, both human and animal, the bacillus may live for long periods enclosed and apparently harmless while yet retaining its infectivity.

(12) In civilised races long exposed to its activities many infected persons recover spontaneously with very few symptoms, and even in ordinary chronic cases the course is often marked by periods of quiescence or regression, whereas in races not previously exposed its incidence is severe, usually acute, and rapidly fatal.

(13) Cases of pulmonary tuberculosis following on multiple tuberculous lesions elsewhere usually run a favourable course (Marfan's law).

(14) Koch's phenomenon, as briefly stated by Calmette, "Every already tuberculous body tends to expel a new dose of bacilli inoculated subcutaneously."

The explanation of these fundamental generalisations is difficult. We are each of us so inclined to interpret them in the light of our own special views as to the factors of infection, heredity, diathesis, immunity reactions, or environment. Koch's phenomenon, which I have just quoted, seems to offer the most probable explanation of the pathogenesis of pulmonary tuberculosis as it occurs in the adult. It is of interest to note that Koch himself, although he recognised the importance of his own observation, which indeed led him to the discovery of tuberculin, yet did not realise its significance in regard to the peculiar features of pulmonary tuberculosis in the adolescent and adult. Behring was the first to suggest that the primary infection in tuberculous diseases

[1] THE LANCET, Feb. 2nd, 1924, p. 247.

occurs in infancy or early childhood, and that the development of pulmonary tuberculosis might be due to the liberation of tubercle bacilli long enclosed by protective and reparative processes, owing to some local breakdown or diminished general resistance. He crystallised his views in the now famous epigram, "Phthisis is but the last verse of the song, the first verse of which was sung to the infant in its cradle."

Behring's views have been extended by Hamburger, who compares tuberculosis with syphilis, and maintains that it is as difficult to reinfect in one as in the other. The primary lesion is the local infection of infancy, the secondary stage comprises the glandular, osseous, articular, and serous localisations, while pulmonary tuberculosis and the other visceral forms are comparable to the tertiary and quaternary forms of syphilis. Römer, Krause, and others explain the genesis of pulmonary tuberculosis more strictly in terms of Koch's phenomenon. From this point of view pulmonary tuberculosis is the result of re-infection or super-infection in a patient sensitised or rendered "allergic" by a previous infection in infancy or childhood. If we accept this conclusion, we can explain many of the peculiar features of the disease, especially why it is a grave disease tending to the miliary type in infancy and in individuals of races not previously exposed. It also becomes intelligible why the mortality from the pulmonary form of this disease increases after 14 or 15, while that from the non-pulmonary form diminishes or remains constant.

It would seem probable that in infancy the disease is spread in the body by the blood, whereas in later life extension occurs by lymphatic channels, direct extension, or by inhalation, and only in miliary forms by the blood-stream. What still remains unsettled is whether the re-infection or super-infection takes place from breakdown of the old lesions of childhood or from bacilli introduced anew from without. Behring and Hamburger would seem to suggest the former, in which case infection is really only of importance in early life. On the other hand, the fact that pulmonary tuberculosis is exclusively due to the human type of tubercle bacillus, whereas admittedly a considerable proportion of tuberculosis in early life is bovine, would seem to suggest strongly the possibility of exogenous re-infection or super-infection, at any rate in some cases, and that the changes in the lungs are comparable to the changes described as resulting from secondary inoculation in Koch's phenomenon.

Recently Sir Almroth Wright[2] has published suggestive observations which show that in the patient suffering from tuberculosis with febrile reactions (or auto-inoculations if we accept this view) there is a greatly increased hæmo-bactericidal power compared with the normal, and this observation may well prove to be of great importance in suggesting treatment, by directing attention to the rôle of the leucocytes rather than of the serum and tissue fluids.

VARIATIONS IN TYPE.

Pulmonary tuberculosis is clinically a pleomorphic disease. It varies from a rapidly fatal condition lasting days or weeks at most, to a condition tending to spontaneous arrest, and giving rise to few or no symptoms, with cases of intermediate character in which its course is undulatory, and may last throughout a fairly long life.

It is customary to divide tuberculosis into types, and the most useful classification is into (1) acute miliary; (2) acute caseous—(*a*) broncho-pneumonic form, (*b*) lobar pneumonic form; (3) chronic fibro-caseous; and (4) fibroid. We may correlate these different types with variations in infective dose, heredity, susceptibility, the immunity responses or environment according to our personal views, but it is important for us to recognise as soon as possible to which type our patient belongs, for upon this recognition our prognosis and our treatment must largely depend. At the same time we must remember that these types are not hard and fast, that this disease is one in which it is difficult to forecast, and that in all types except the acute miliary, dramatic changes may occur either spontaneously or as a result of treatment.

One of the most acute of the wise aphorisms of the late Dr. Samuel Gee was, "Never give a definite opinion as to how long a patient suffering from phthisis will live; for the only certainty is, that if you do, you will be wrong."

The great problem of treatment in pulmonary tuberculosis is that relative to the ordinary chronic fibro-caseous type. It is customary to divide the course of this form of the disease into stages, and for this purpose the Turban-Gerhardt classification is most generally employed.

PRINCIPLES OF TREATMENT.

At the outset I may state that I propose to consider treatment of the individual patient suffering from this disease as the aspect of treatment most germane to the work of this society. I feel that the collective character of the work being done under the ægis of the Ministry of Health to deal with the disease from the sociological and public health aspects may in some degree militate against the interests of the individual patient, although the official scheme is practical, helpful, and elastic. As practitioners it is our duty to do the best for the patient who consults us. It is becoming increasingly difficult for us to do so. There is no disease in which diagnosis and treatment in the earliest stages is of more crucial importance, yet the student gets less and less opportunity of studying the symptoms and signs of this disease, as it comes more and more under the control of the health authorities and appears less and less in the out-patient department and wards of our teaching hospitals. Again, the dispensary and the sanatorium are the centres round which the official diagnosis and treatment are pivoted, whereas it is in the home and the hospital where the initial stages are best studied, and it is the general practitioner in the great majority of cases who sees the cases in the earliest and curable stage, and upon whom the responsibility of early diagnosis rests. Notification by him brings the case within the purview of the tuberculosis authorities, and may be of great value as the means of securing treatment for those of limited means.

The first principle of treatment should be to secure the case as early as possible, and for this purpose it is necessary to be on the watch for suspicious symptoms. Early suspicion in cases of obscure illness is the attitude of mind we must cultivate. To enable the practitioner in the future to do this it seems to me that it may be necessary to affiliate more of the tuberculosis dispensaries to the teaching hospitals, and to increase the opportunities for undergraduate and post-graduate study of the disease in all its stages. I feel also that a short stay as resident clinical assistant in a sanatorium might be a very valuable form of post-graduate study if it could be arranged.

The second principle is to recognise the type and stage of the disease and to adapt treatment accordingly.

The third principle is to increase the resisting power of the individual by every means in our power. The study of occupation, of environment, and of personal history becomes of the greatest importance. At present, unfortunately, our chief means of increasing immunity are indirect and non-specific.

The fourth principle is to secure as complete rest as possible to the diseased lung or part of the lung with a view to localising the effects of the disease and preventing systemic toxic reaction, or, in other words, auto-inoculation. It may be a question if even yet the importance of this factor in treatment is sufficiently recognised, except by those in daily contact with the problems of tuberculosis, and it is certainly not understood by the majority of patients and still less by their friends. The object is to

[2] THE LANCET, Feb. 2nd, 1924, p. 218.

convert the lesion from an open to a closed condition, from a spreading toxic process to a localised, non-toxic healing one.

DIAGNOSIS OF ACTIVE DISEASE.

It is obvious, therefore, that to determine what treatment it is best to recommend for a given case, we must first diagnose the presence of active tuberculosis, and then assess the type of the process, its localisation, and the degree of activity. It must be apparent that it is well-nigh impossible to do these things in a single interview, no matter how exhaustive or how careful the examination may be, and it is important that it should be generally realised that to make a diagnosis may involve careful observation for some days at home or in a nursing home. This is now appreciated by the Ministry of Health, but is not recognised by private patients.

It may, therefore, be of interest to inquire what information we should try to secure in order to make a working diagnosis. We need a full and careful history, as regards the family, the previous illnesses, and, if possible, the habits, occupation, environment, and even the personality of the patient. We should obtain a detailed statement as to the symptoms, their onset and progress. This is often difficult, but it is well worth the labour and patience it often requires. Then the physical signs must be most carefully worked out, and great attention paid to small variations from the normal which may often have to be interpreted in terms of the symptoms. We should look specially for symptoms and signs of toxæmia. At the same time it must be emphasised that extent of physical signs is no criterion of activity, and may be a fallacious guide to prognosis. A record of temperature spread over several days and if possible more than the usual morning and evening readings, since the rise in this disease may occur at unusual times—e.g., late in the evening or early in the afternoon or even in the morning—is essential. With such information as a minimum we may usually obtain a tentative diagnosis with some probability as to accuracy, but no certainty. We must therefore try to secure other evidence.

Sputum Examination.—The presence or absence of tubercle bacilli is too often taken as almost the sole criterion of diagnosis and of activity. This is incorrect in both directions, since some cases of undoubtedly active disease may be closed and not show tubercle bacilli, while in some cases in which they are present there may be practically no symptoms and the patient may be capable of an active life, if he realises his restrictions and his public duties.

X ray Examination.—This is a record of very great value, which will doubtless become more generally used even than at present. It should, however, be kept until after the information suggested above has been obtained, when its results can be correlated therewith and placed in the correct perspective. I regard X ray examination rather as a means of confirming the presence of tuberculosis, of revealing its extent and the presence of complications, than as a means of diagnosis. It is also essential in determining the application of some forms of treatment, especially that by artificial pneumothorax. It may also afford valuable information as to the progress after treatment.

Apart from the means of diagnosis, what we most need is some means of assessing activity in patients with doubtful signs, and in those in whom the clinical features suggest arrest or obsolescence. Much pioneer work has been done in this direction, but a reliable method is yet to seek. Other sputum tests such as the presence of albumin are not specific.

Tuberculin reactions, especially the subcutaneous and the quantitative Pirquet, may give useful information, but the former is not devoid of risk and is inapplicable in cases with fever, while the latter cannot be taken as a strict measure of activity.

Complement Fixation.—These tests are on trial, and important claims have been made by some observers. There is, however, at present too big a margin of error to allow of reliance being generally placed on the results.

Opsonic Determinations.—In my experience these may be of value in special hands, but they have practically been given up owing to technical difficulties.

The Wildbolz auto-urine test and its serum modification do not seem to justify the claims made for them.

It is familiar to all that even with all this information there may be an element of doubt in our appraisal of a closed case of tuberculosis or a difficult case with obscure signs. We have often to act on the balance of probability, and may take comfort from the fact that it is a less serious error to send a patient with some obscure condition causing ill-health to a health resort than it is to fail to recognise and treat an early case of pulmonary tuberculosis.

INDIVIDUAL TREATMENT.

In selecting treatment for a given case we must give due weight to family, financial, and personal considerations. It is wise always to consider carefully the patient's personal predilection, but never to be argued into a course which we feel to be unsuitable.

Treatment may be at home, in a nursing home or hospital, a sanatorium, at some mountain resort, or at some marine or other climatic station, and at various stages a case may be suitable for several of these in sequence.

Home Treatment.—In the febrile stage home treatment may be the most suitable—provided that conditions are favourable and that the practitioner in charge is familiar with the principles of treatment, and further, that the patient and those in attendance, whether relatives or nurses, carry out instructions literally. When toxic manifestations have abated and the fever has subsided, then removal to sanatorium or other place may be considered. It should be remembered that toxic symptoms may be present with little or no fever. Home treatment may also be best suited for chronic, slowly progressive cases in which other measures have failed, for cases complicated by visceral metastases or by other conditions, and also for advanced cases, if the risks are realised and due precautions are taken. That home treatment is possible throughout the disease even in large towns has been repeatedly proved. In America this form of treatment has been organised and developed to a greater extent than in this country, especially by S. A. Knopf in New York, and by Pratt in Boston. The latter has developed what is known as the "class method," which has also been used in Montreal. The methods employed are worth study, as much ingenuity has been shown in devising methods to secure as much open air as possible, and to give help and advice to patients. For the majority of cases, however, home treatment should only be used as a preliminary to treatment at a sanatorium or elsewhere. In this connexion it is well to utter a word of warning. Too often, while the patient is waiting to be received into a sanatorium, he works hard to clear up his affairs, and fails to regard himself as under treatment. Rules should be given to him as soon as the disease is diagnosed.

Nursing Home or Hospital.—For domestic or financial reasons, it may be impracticable to carry out the necessary preliminary treatment at home. In this case a period in a nursing home or hospital may solve the difficulty. Homes for advanced cases for all classes except the rich are a great need, as it may be very difficult to place a case who is not in any sense a candidate for one of the homes for the dying and yet requires institutional treatment.

Sanatorium Treatment.

There is no form of treatment about which so many misconceptions exist as that in sanatoria, not only on the part of the public, but even in the minds of some members of our own profession. I regard this form of treatment as of the greatest value, and I believe there is a stage in the majority of cases, other than the acute, when it may be the best form to adopt, not only for its educational value, but as a means of achieving arrest

in the shortest time. On the other hand, to regard sanatorium treatment as the standard treatment for every case and to send unsuitable cases is uneconomical, unkind, and useless. A sanatorium filled with unsuitable cases is not a sanatorium, but a country hospital for advanced cases, for which it is ill-equipped and unsuitable. Sanatorium statistics, of which there is almost a glut, seem to agree upon one point only—viz., that the best results are obtained in the so-called first-stage cases and in those without tubercle bacilli in the sputum. This serves to emphasise the importance of early diagnosis and of the selection of suitable cases for this treatment. Only in this way does sanatorium treatment become economically sound, whether for industrial cases or for the well-to-do.

It is a truism that the success of sanatorium treatment depends more upon the personality of the superintendent and upon the manner in which the institution is run than upon its situation. At the same time, success is dependent not only upon the right type of case being sent, but also upon the loyal coöperation of the patient. The practitioner sending a case may help materially by instructing the patient as to the rôle of sanatorium treatment, and endeavouring to prepare him for its restrictions.

The types of case suitable for sanatorium treatment comprise: (1) Early cases without fever; (2) early cases in which fever has subsided and the patient is able to be up at least four hours a day, and preferably six to eight hours; (3) old arrested cases with slight breakdown; (4) most cases in which artificial pneumothorax has been successfully established; (5) cases after pleural effusion. It should be remembered that it is not the duration of the disease or the extent of the lesions, but the degree of activity and of toxic reaction which have to be considered most.

Cases unsuitable for sanatorium treatment are: (1) Cases with active spreading disease showing fever and toxæmia; (2) cases with severe complications likely to require much nursing and prolonged stay in bed; (3) cases with chronic bronchitis, chronic arthritis, or with severe cardiac embarrassment; (4) tuberculosis in the elderly or aged. The conditions are apt to be too severe, and the restrictions unduly irksome; (5) certain patients of shy personality and home-loving character to whom removal to any institution is a matter of dread or dislike. Occasionally such patients settle down and do well, but as a rule they do better at home or under favourable conditions in country surroundings.

Character is a great factor in recovery. Sanatorium treatment fails sometimes in persons of not very robust personality, in whom we find marked deterioration of will and initiative. They become selfish valetudinarians, and wander from sanatorium to sanatorium, or remain for years at one, even after the disease is quiescent, thus becoming useless parasites on their relatives.

The question as to how long a patient should stay at a sanatorium is difficult to answer. It is often impossible for financial reasons for him to remain till arrest is complete, as this may mean a year or more, if set-backs from extension or from over auto-inoculation occur. In general, we may say that it should be at least four months, and, if possible, six or eight. Change to another sanatorium is often desirable when progress is slow. Change may also be of value in affording different surroundings, varied diet, and fresh amusements. Diet is a matter which should be very carefully studied in sanatoria, for there is a tendency in some to provide a definite weekly sequence of meals, which becomes monotonous and therefore unappetising.

Climatic Treatment.

A belief in the value of climatic change in this disease dates from Greek and Roman times. The proved value of the Swiss mountain resorts has appealed strongly to many people, and this form of treatment has been very popular in the past. The war period and the restrictive measures taken in various colonies, dependencies, and foreign countries to prevent the entry of tuberculous persons have lessened the opportunities for this form of treatment, and in any case it must of necessity be largely confined to the well-to-do.

Climatic resorts may be classified into mountain, marine, inland, and desert. For this disease we must select places in which abundance of fresh air and sunshine are the rule, and where there is comparative freedom from dust and strong prevailing, rain-bearing winds. Mountain climates have great advantages in the pure rarefied air and the changes it induces in the respiratory and circulatory systems, also in the greater diathermancy of the air at these altitudes.

Mountain Resorts.—The Swiss resorts are those most convenient for patients in this country, and of these there are many to choose from, at sufficiently varied altitudes. Davos (5150 feet) has a long reputation behind it, and accommodation to suit patients of moderate means as well as the more affluent. Arosa (6000 feet) is now more easily accessible than formerly, and treatment here is well organised. St. Moritz (6090 feet) has developed more for other conditions than tuberculosis, and with its arrangements for winter sports and for the healthy is less to be recommended for the sick. Montana (5000 feet) has an unrivalled situation and a good record in sunshine. Leysin (4690 feet), the Mecca of heliotherapy in surgical cases, has also accommodation for pulmonary patients. For levels of about 3000 feet there are Les Avants and other places in the neighbourhood of Montreux. Other mountain stations are those in the Rocky Mountains, such as Colorado Springs and Denver, and those in the Adirondack Mountains, but these are not practically available for patients from this country.

Treatment at these mountain stations is chiefly suitable for patients out of health in whom the diagnosis is doubtful, as they can receive treatment without the stigma too often attaching to patients who have been in a sanatorium, for patients with early afebrile disease or with localised disease and little fever, and for some chronic slowly progressive cases, in whom ordinary treatment has failed to secure arrest. It is important to recognise that there are many cases which should not be sent to the mountains. Among these are advanced cases with active spreading lesions and toxæmia, cases with severe recurrent hæmoptysis from excavation or gross disease, or indeed any recent hæmoptysis, cases with complications, particularly laryngeal involvement or enteritis, cases with extensive fibroid disease and those with emphysema, cardio-vascular disease, or albuminuria. If good progress is made, the patients should stay till arrest is complete, and in many cases it may be wise to remain for a second winter. Many patients leave for lower stations during the period of melting snow, though this is not necessary and is sometimes risky. They should not return to this country till May.

Marine Resorts.—It is usually believed that the actual sea coast is unsuitable for cases of this disease, but the reason for this belief is obscure, and in any case it is said that the disadvantages disappear a short distance inshore. The coast resorts in this country are very numerous. The French and Italian Riviera may be of use in cases of arrested disease, but are less adapted for cases requiring active treatment. Arcachon also is a convenient and suitable winter resort for cases without much active disease. Madeira, the Canaries, Morocco, and the North African coast may also be considered for cases of quiescent disease, those with slight activity, and those with catarrhal conditions, but rarely for those with active signs. Sea voyages are now universally given up except for cases in which the disease is arrested or quiescent.

Inland Resorts.—The moorlands in these islands, especially those of Scotland, Yorkshire, and Devon, afford ideal conditions for some cases, and good results are often obtained. Other suitable places are

California, the high veldt of South Africa, and various places in Australia and New Zealand, but these are no longer possible to patients from this country.

Desert Stations.—The Egyptian deserts are sometimes advised, but are not ideal owing to the matter of dust. Practically the only places at all suitable are Helouan and Mena House, Ghizeh. Luxor and Assouan involve a long and tiring journey, and have a very short season.

GENERAL MANAGEMENT OF THE CASE.

Having decided upon where treatment shall be carried out, it is necessary to determine and map out what that treatment shall be. The basis of treatment should be what Fishberg, to whose monumental work on this disease most workers in tuberculosis are deeply indebted, calls "the traditional therapeutic triad—air, food, and rest." At the outset it is wise to explain to the patient the reasons for the recommendations given. Patients are more likely to submit to the various restrictions and rules if they grasp that each one is given on reasoned grounds and not as a capricious or oracular pronouncement.

If treatment is to be commenced at home, the most suitable room should be selected, if possible one with a south or south-west aspect, and one from which the patient can easily be moved into the open when weather conditions permit. The furniture should be reduced to the minimum consistent with comfort, and arrangements made to reduce dust to a minimum, especially during the cleaning of the room. If the patient has to remain in bed for a prolonged period it is an advantage for him to spend the night in a different room or in a different bed. The windows should be widely opened, but direct draughts must be avoided, and in patients with catarrhal or bronchitic tendencies the room may be warmed to a suitable temperature. The rigours of the winter cold may be mitigated as far as is consistent with abundance of fresh air. The clothing on the bed may be varied as necessary, so that the patient is not cold and uncomfortable. The blue and chilblained extremities, so often seen, should be prevented if possible.

Outdoor shelters have a value, and should be introduced where possible, but there are times when the discomforts involved outweigh the advantages of the extra exposure to fresh air. When the patient is allowed up, the clothing should be warm and comfortable, but not excessive. Life in sanatoria soon leads the average patient to fear chill less as a cause of colds than infection. Flannel underwear is usually advisable, and loose comfortable warm clothes, with good boots, giving protection from wet and damp. If afebrile, the patient may have regular baths, cold or warm according to his custom, or if in bed with fever he may be sponged or blanket-bathed with as little disturbance as possible. In men with cough and sputum it is best to advise clean shaving.

Smoking.—Where there is much cough or active disease with fever, and in cases with laryngeal tuberculosis, it is best to avoid smoking. It may be permitted in moderation to cases where arrest is satisfactory, but inhaling should not be permitted.

Sputum.—It is of the greatest importance to instruct every patient, and those in charge of him, as to disposal of sputum, and the risks of indiscriminate cough. This is even yet not universally done. A difficult task is often that of explaining the great risks of infants or young children brought into contact with cases of open tuberculosis even for brief periods. It is desirable that this should be as widely known as possible, if the incidence of the disease is to be controlled. We want to make adults less anxious about their own risks, which are comparatively small, and much more concerned about those of the young, which are very great.

Diet.—The hyperalimentation of the early sanatorium days has given place to a more rational dietary. It is now recognised that gain in weight is not by itself curative. We should aim at improving general metabolism and restoring the patient to his "highest known weight." This having been achieved, the diet may be modified or cut down. A caloric value of from 3000 to 3500, according to the patient's build and amount of exercise, is usually ample, and only exceptionally in patients doing heavy work is it necessary to go beyond this. The increase may be made in protein up to a total of ¾ lb. of cooked meat a day, or part may be given as fish or eggs. Tuberculous patients usually tolerate fat well, and fat is generally regarded as of special value in this disease. It may be given in any palatable form. Milk is often given in large quantities at each meal, but when other food is being taken the amount should generally be less than two or three pints. Carbohydrates may be considerably increased where active muscular work is being done.

The diet should be as varied and as palatable and appetising as possible. Few patients go through their treatment without some degree of dyspepsia and anorexia, and it may require much care, patience, and ingenuity to secure an adequate and agreeable diet, particularly in patients confined to bed with fever. It is, however, remarkable how often patients with considerable rises of temperature retain their appetite, and can deal with more ordinary diets than patients febrile from other causes. Raw meat sandwiches have been recommended and may be tried. They can easily be made palatable, and may be taken with a little burgundy in the morning. Alcohol may be allowed in moderation to those accustomed to it, but as a rule it should be given up and milk or milk and soda-water taken instead. Various special diets, like the grape cure of Meran, sour milk, and the exclusive use of milk, have been recommended, but come under the category of freak or fad treatments.

Rest and Exercise.—It has been happily said that rest is the one treatment which has stood the test of time. Hilton's classical work has emphasised for all time the value of rest in the treatment of painful or diseased parts. In this disease complete rest is essential as long as there is fever and toxæmia, and, as we shall see, local rest to the diseased lung is a valuable means of treatment when it can be achieved. In febrile cases what is known as "absolute" or typhoid rest is usually necessary. The patient is kept completely recumbent and is waited on completely, not even being allowed to feed himself, or to get up to go to stool. This may be necessary only for a few days, or may require to be kept up for weeks or even months. It should be relaxed as soon as possible in order to encourage the patient. Rest, by lowering fever, lessening auto-intoxication, and localising the disease, is the most effective means of treatment we have yet evolved. The difficulty often is to persuade the patient that it is necessary and beneficial. He or his friends think it is weakening and are apt to attribute all his symptoms to it. It is here that sympathy and confidence between doctor and patient become of great value, and if we can convince him of its necessity a valuable step in treatment has been made.

Not only fever, but other indications of toxæmia and of auto-inoculation, such as headache, anorexia, dyspnœa, quick pulse, weakness, and depression may all render rest essential. Moreover, an excessive auto-inoculation from work or exercise, a local extension, or some intercurrent condition may render a return to bed necessary. It is usually stated that with a temperature of 99·5° or 100° the patient should be put to bed. This is true, but a more valuable indication is the general record of the temperature and pulse from day to day. An early morning rise or a quick pulse may indicate a fresh extension or an over-inoculation and necessitate return to bed. It is only when the temperature becomes steadily normal or subnormal that we can consider allowing the patient up, and gradually increase the time up and then permit exercise. The rate at which this may be done is one of the most difficult problems and requires judgment and experience.

THE PHYSICAL BASIS OF EMOTIONAL DISORDER.[1]

BY H. CRICHTON MILLER, M.A., M.D. EDIN. & PAVIA,
HON. DIRECTOR, TAVISTOCK CLINIC FOR FUNCTIONAL NERVE CASES.

IT has been claimed in the name of psycho-analysis that "every neurosis is caused by a psychic conflict." Without desiring to generalise on the pathogenesis of the neuroses, I propose in this paper to show how inadequate is such a conception. I submit that a theory of the neuroses based upon "the wish," or on the conflict between ego and social impulses is narrow to the point of being misleading, however valid it may be in a partial application. Further, I suggest that, apart from the Freudian theory, in actual practice psycho-analysts tend to seek in emotional experience the causation of all but a limited group of the neuroses. It appears to me that, however important the psychogenic factor may be, we must recognise that somatogenic factors are rarely absent, and that to approach the problem of the neuroses exclusively from the standpoint of psychic conflict is to compromise our therapeutic opportunity unjustifiably. Or, if we are determined to reduce our equation to terms of psychic conflict, let us frankly realise that one or other side of the conflict is frequently conditioned by factors of a biological nature, which are not beyond the reach of physical treatment. The neuropath brings life to a standstill, and the psychopath retreats from it, in each case because of his inability to orientate himself to the future. Is it not reasonable to suppose that much of this inability is based upon an awareness of organic inadequacy?

The value of the following formula should be considered as covering the ætiology of a large group of neuroses: Awareness of incapacity to meet a demand for adaptation present or impending. It will be convenient to discuss the subject under four headings: (1) Alimentary, (2) vascular, (3) endocrine, (4) sexual. These headings are not offered as a classification, as I am aware that they overlap at many points.

Consciousness of Alimentary Inadaptability.

It is clearly within the experience of each one of us that our emotional feeling tone is influenced by the minor physiological disequilibria of an empty stomach, a loaded colon, or a congested liver, and practical physicians are prepared to discount the emotional reactions associated with such states. But when a condition of this kind becomes chronic we may reasonably suppose that an equally chronic emotional distortion occurs which should preclude any thought of psychological treatment. Only a few months ago I saw a patient, X. M. M., who had undergone several months' treatment by an analyst for what he diagnosed as a mild anxiety neurosis. Being none the better, she consulted a surgeon, who removed a portion of her colon. She now claims to be well. I have no wish to express an opinion on the expediency of either form of treatment, still less do I wish to identify myself with the view either of the analyst or of the surgeon—both of which are known to me—but I am prepared to say that, if both lines of treatment were indicated the order in which they were carried out cannot be justified. I would go the length of surmising that the analyst must have spent a good deal of his time in attempting to resolve complexes which would have resolved themselves had the patient's feeling tone been more normal than is that of a typical case of chronic coprostasis. In other words, I believe that the psychic conflict which caused the anxiety neurosis was based on a general awareness of incapacity to meet the demands for adaptation which her daily life imposed on the patient. If I am correct, then the proper procedure would surely have been to eliminate first the factor of intestinal toxæmia which produced this sense of physical inadequacy.

Influence of Vascular Tone on the Emotions.

It is probable that few of us are sufficiently alive to the influence of blood pressure on emotions. The sensitiveness of the brain to high and low blood pressure, and to instability in blood pressure, whatever be its exact nature, is one of the factors most frequently responsible for emotional disorder. The patient with a consistent hypopiesis must inevitably experience a sense of mental, if not physical, inadequacy, and it may well be a matter of surprise to us when such a patient fails to show clear symptoms of emotional instability. There is a constant sense of inadequacy which may produce an anxiety state or else a constant craving for stimulating experience. Thus we have a considerable class of alcoholics whose craving for alcohol is fundamentally based on this sense of inadequacy due to a low cerebral blood pressure. Doubtless they all have their conflicts, which are bound to be exaggerated by the physical condition, but to say, as the psycho-analysts have said, that "All alcoholism is due to homosexuality," is gross misrepresentation which can only lead to therapeutic puerilities. On the other hand, there is a school of thought which deals largely in exhaustion neuroses and psychoses. The term seems to me a very unfortunate one unless it connotes curability by rest alone. Many of these cases are blood-pressure problems, and mere rest is neither a certain nor permanent cure for disorders of cerebral vascularity. Again, the mere fact of vascular instability has its emotional implications. The man of 60 whose arteries are beginning to harden finds that at certain times of the day his concentration fails him or uncontrollable somnolence comes over him. Surely we are justified in regarding this as a cause for deep concern on the patient's part—the sense of his failing capacity to meet the demands for mental activity which his business involves?

The Endocrine System and the Psyche.

It is impossible for us in the present state of our knowledge to have any exact conception of the influence of the internal secretions on the emotional life. But in regard to the thyroid, at any rate, we have some definite knowledge.

D. H. E., a woman of 32, consulted me for breathlessness, lassitude, and generalised fear. She had a pulse-rate of 120, slight exophthalmos, and a greatly enlarged thyroid. I sent her to a surgeon, who expressed unwillingness to attempt surgical interference. The patient was therefore ordered rest, and a colleague of mine undertook her analytical treatment. A mass of repressions was revealed. She had a profound father complex and a recent history of active homosexuality. She made some progress, but when she began to go about again her symptoms returned. The surgeon then consented to operate and extirpated a considerable portion of the gland. She made a good recovery, went to work, and has been fit for her work ever since as far as I am aware.

Now in this case I am open to conviction that the psychic conflict was the sole cause of the hyperthyroidism, though I suspect that an element of bacterial infection must at one time have been operative. Let us, however, grant that the condition was primarily psychogenic. It remains undeniable that the physiological implications of the emotinal conflict had reached a point at which no redress of the emotional equilibrium could effect a remedy. In short, emotion had affected function and function had affected structure to a point from which there was no recovery by the path of the original onset. Or let us look at this case another way. Granted that the original psychic conflict centred round the parental and homosexual complexes—in other words, that the original emotional disorder was due to emotional experience—I submit that the conflict was greatly exaggerated by the sense of physical incapacity, an incapacity which was successfully dealt with by physical means, and I add that until this secondary

[1] A paper read before the Section of Psychiatry of the Royal Society of Medicine on Feb. 12th, 1924.

source of conflict was dealt with it was impossible for the patient to resolve that part of her conflict which centred round her sex life. Furthermore, the most striking result of the surgeon's work was the lessened capacity for fear, presumably due to increased stability of all her motor reactions. This case seems to me an illuminating example of the action and reaction between thyroid function and emotional disturbance.

Another case of some interest is the following:—

D. C. H., aged 10½, brought to me for uncontrollable weeping. He was at a first-rate preparatory school where his environment was excellent. The boy lived with his brother and sister in the care of an aunt who appeared to be a first-rate foster mother. Both at home and at school he wept incontinently and without any apparent reason. His intelligence was said to be fully average. He was good at games and notably plucky. But all his masters reported the impossibility of putting up with a boy thus afflicted. During his interview with me he wept copiously and almost continuously. He said he cried because he thought of his father and mother. Now his father had been blown up at sea when the boy was about 5. He was said to have seen little of his father and never to have been at ease with him. In due course the mother married again. The step-father was particularly kind to the boy and the boy seemed fond of him. A year previously both mother and step-father were killed in a railway accident. On the physical side he was of normal physique, his pulse-rate was normal, but there was a definite thinning of the eyebrows on the external side.

The emotional situation was very intriguing, being complete down to the Hamlet touch, and I venture to surmise that many analysts would have felt justified in treating this patient. I put him on thyroid. In a week he was better; in six weeks he was perfectly normal; and I afterwards was able to confirm from my own observations the claim of his head master and of his aunt that he had been completely transformed.

The Function of the Thyroid.—But without choosing definitely pathological examples we may recognise the constant influence of the thyroid in the balance of ideation and expression. The thyroid has been recognised as the great anabolic reservoir of the whole system; it has been described by Leonard Williams as the female gland par excellence; it has been regarded—probably erroneously—as the determinant of bacterial immunity. Langdon Brown has suggested that it corresponds to the extravert principle in psychology. This last view falls in with my own conception of it as the gland of creation. We can at any rate, without indulging in speculation, recognise in the activity of the thyroid the principal determinant of expression. Now the sub-thyroidic introvert is an under-expressed individual who cannot fail to have numerous repressions and who easily falls a prey to an anxiety neurosis. I recognise in him primarily a case for thyroid administration, being convinced that a great deal of his anxiety will clear itself up without any analytical treatment when the balance between ideation and expression has been redressed. His psychic conflict consists largely in that sense of inferiority which arises from his inadequate powers of self-expression. In other words, the awareness of incapacity to meet life's demand for expression is the essential feature of his conflict, and it is a feature eminently amenable to the simplest form of therapeutic aid.

The Adrenals.—We cannot consider thyroid action exhaustively without discussing the adrenals as well. No correlation between emotion and physiological function is better established than the effect of fear on the "fight or flight" mechanism—that is, fear stimulates adrenal activity, this stimulates the sympathetic, the vagus equilibrium is upset, and the thyroid stimulated to increased secretion. Many of us, no doubt, recognised during the war the remarkable difference between what may be described as objective and subjective courage. One man would display the utmost heroism in the face of imminent danger, who nevertheless was tortured before by the anticipation or afterwards by the memory of the same danger. Another would appear unaffected before and after, and yet display terror in the presence of the actual danger. It seems to me that these differences must depend primarily on the responsiveness of the adrenal system. With some, fears in phantasy are sufficient to determine an adrenal reaction, while with others nothing short of objective danger produces this result. With some the response is biologically efficient, and with others it fails to produce an adaptation which is biologically favourable. Hence, in the great class of psychic conflicts which centre round the instinct of self-preservation, we may reasonably assume that an important element often consists in the awareness of adrenal inefficiency leading to the incapacity to adapt to situations of danger. I am not prepared to maintain that this factor, although it is largely a physiological one, is capable of being dealt with on a physical basis, but I am optimistic enough to hope that with greater knowledge of the subject this will come to be the case. I am encouraged in this hope by the undeniable effects of adrenal therapy in asthma. Here we have a condition in which analytical treatment has repeatedly revealed the psychogenic importance of fear complexes. It seems to me quite impossible to harmonise these two therapeutic methods of known value unless we picture the condition as a vicious circle in which fear promotes hyperadrenia and hyperadrenia promotes dyspnœa and dyspnœa promotes more fear, and so on.[1] The asthmatic is therefore an individual aware of his incapacity to meet certain demands for adaptation of a respiratory nature, and this awareness constitutes, in my view, a part of his psychic conflict which already we can, to some extent, treat on a physiological basis.

The Balance of the Autonomic Nervous System.—This problem of sympathetic stimulation is important enough to demand further discussion. The balance between sympathetic and parasympathetic activity must unquestionably be of no less consequence to the feeling tone of the individual than cerebral vascularity. The sympathico-tonic is neither more nor less incapable of meeting life's demands than the vagotonic. The first with his uncomfortable tension, his exaggerated response to stimulus, and his variable moods is as far from the mid-line of well-being as the second with his dull, relaxed, and apathetic lethargy that only intense stimuli can affect. The sympathico-tonic fears life because he cannot tolerate it when it becomes unduly stimulatory, whereas the vagotonic fears it because he can only tolerate it under these conditions. I submit, then, that both types are alike aware of their incapacity to adapt to a world in which stimulus is necessarily inconstant.

Interaction of Developing Glands.—Now, if we pass to a more general survey of the endocrine system, we are at once confronted by the antagonism between the glands of childhood and those of maturity. Our ultimate fate in life is so intimately bound up in this conflict that we are justified in surmising that it has far-reaching emotional implications. When and how the thymus and pineal yield to the gonads are the questions upon which turn not only our physical stature, but also our mental and, in some measure, our moral stature. Analytical psychology is largely taken up with the persistence of puerile characteristics. It is surely impossible for us to contemplate the tendency involved in such regression apart from the physical side. The high-grade defective is no doubt immune from the attentions of the intelligent analyst, but there are definitely subnormal types, many of them characteristically thymo-centric, whose thumb-sucking or other childish proclivities are apt to become the subject of solemn and arduous exploration. Without throwing any aspersions on the familiar psychological explanation of these manifestations, I venture to suggest that emotional immaturity might be approached—in certain cases, at any rate—from the point of view of physical

[1] The factor of specific sensitivity to foreign proteins is omitted not because I ignore it but because it seems irrelevant to the present discussion.

immaturity. We are all familiar with the inferiority sense of the high-grade defective, associated as it invariably is with a train of compensations in phantasy and behaviour. We recognise that in his case psychic conflict centres round his awareness of incapacity to meet the ordinary demands of life. We are prepared to admit that if any physical treatment could render him more efficient, his inferiority sense would be mitigated and its psychological implications reduced. I venture to suggest that there are many neurotic individuals who, while they cannot be classed as defectives, are yet immature psychologically and physically, and that their treatment should be regarded primarily as a problem of organotherapy, albeit a problem still unsolved.

The Sexual Aspect of Mental Disharmony.

The question of maturity brings us naturally to the consideration of the sex aspect of our subject. First of all let me say that if we are to see this problem in its true light, we must recognise that the biological objective of every individual must, from an evolutionary standpoint, be parenthood. I think we are often apt to lose our way in this wood because of the number of trees—chiefly phallic, of course—which constitute it. The gratification of the sex appetite is constantly referred to in terms which suggest that it is a terminus ad quem. This is surely superficial. The individual may, and constantly does, detach the hedonic from the procreative aspect of the function, but biologically the two are inseparable, and it is reasonable to suppose that unconsciously they are much more united than they are in consciousness. I think there is analytical evidence of this. If, then, we regard the achievement of parenthood as an impending demand for the male and the attainment of parenthood as an impending demand for the female, we see how readily psychic conflict may arise from any awareness of incapacity to meet this demand. Let us consider a few sex problems in this light.

Masturbation.—Let us first take masturbation. It is a mistake, I think, to regard it as mere gratification of an animal appetite. The capacity for sexual response, even of an autoerotic character, is to some adolescents proof that they have reached a phase of development which is at least on the path to maturity, and as such the practice has a reassuring value. Now an adolescent with normal self-confidence neither requires nor obtains any such reassurance. If, then, some adolescents differ from others in respect of this self-confidence, I submit that one ground of difference is in the gonad adequacy. It is true, of course, that much depends on the conscious recognition of the nature of the procreative demand and that when this recognition is premature the fear of procreative inefficiency is likely to follow, apart altogether from a sense of physiological inadequacy. But in certain cases the conflict that centres round masturbation derives its intensity from this awareness of incapacity to meet the impending demand to achieve or attain parenthood. Biologically the aim of every boy is to make his father a grandfather. Thus, and only thus, can he satisfy himself of his biological maturity. Social and business promotions have little influence; the youth may become the active partner in the business and replace his father there; he may attain to the social status which has ceased to interest his father, but from the broadest point of view he has not satisfied his urge to displace him until he also has begotten a son as his father begot him. Now regarded in this light the problem of dementia præcox becomes susceptible of a reasoned solution. Let me take an example recently seen.

D. S. is a law student, aged 22. Father, an active and intelligent man, who had forced the lad to ride when he was a small boy in spite of constant terror; subsequently, he had found fault with his inefficiency at school and at the age of 14 had threatened to horse-whip him. The patient has been a masturbator since puberty, the practice being associated with masochistic phantasies. He now complains that he cannot concentrate on his studies. His mind is perpetually obsessed by insoluble problems and impossible phantasies of a masochistic nature. This hebephrenic tendency is passing into his general life, and he is continually assailed by such characteristic questions as, "What would have happened if I had shut that door instead of leaving it open?" On the physical side we find that the patient needs to shave only once in two days; puberty came on at 16; at 12 he had mumps.

This latter statement may sound peculiarly irrelevant, but I must be allowed to reiterate my conviction that mumps occurring between the age of 10 and puberty, even without orchitis, has some deep significance in relation to gonad inefficiency. Now we see here a picture of a boy submitted from childhood to paternal repression and made to feel that maturity was an unattainable prospect and yet with every reason to wish to displace his father. But he feels physiologically inadequate; he regresses in phantasy more and more while deriving satisfaction as a result of masturbation, from the assurance that he is at any rate better than a child. If a motor-car fails to climb a hill it is always possible to say that the hill was too steep. But it is also possible to say that the engine was not sufficiently powerful. Unless we consider the problem in the light of the ratio of the power to the gradient, we naturally get no nearer to a solution.

That is why it seems to me that Mott's conception of dementia præcox as attributable to gonad inefficiency is just as unsatisfactory as the analytical theories which stress exclusively the emotional barrier causing the regression. In other words, I believe that the patient just described might have made a normal adjustment to life in either of two cases: (*a*) if his view of adult life in general and of paternity in particular had been less menacing; (*b*) if his gonad efficiency had given him that confidence which would have enabled him to believe in his ultimate capacity to make his father a grandfather. Now if this view be correct the therapeutic inference is obvious—namely, that it is our duty to attack the early case of dementia præcox not only from the analytical point of view, but also from the physical, and it is fortunate that something can be done in such cases by organotherapy.

Coitus Interruptus.—This is one sexual irregularity to which the psycho-analysts have given ample importance. While I do not claim that the consequent neurasthenia can be classified under the general heading of awareness of incapacity to meet life's demands, I should like to say two things. The first is that out of a considerable number of cases with this causation I can only recall one in which there was not a perfectly definite focal infection. Hence I profoundly distrust the treatment of this condition that ignores the toxic side. The second thing I have to say is that primarily coitus interruptus disintegrates the endocrine system rather than the emotional life. The act consists in a volitional interruption of the most powerful chain of reflexes in our nervous system, and its effect is mainly to throw a strain on the adrenals which in course of time results in adrenal exhaustion. This is my second reason for distrusting the psychotherapeutic approach to such cases, at any rate, as a first approach.

The Menopause.—The menopause presents problems in every department of medicine, with the possible exception of orthopædics. The menopause has necessarily the most profound significance from an emotional point of view for the woman whose maternal aspirations are unsatisfied. But in helping the patient to adjust to the cessation of her generative possibilities we must not ignore the endocrine side, for the withdrawal of the ovarian hormone has a repercussion on both thyroid and adrenals, which is of the greatest importance. A temporary vagotonia ensues which, if it replaces a previous sympathicotonia, determines grave physiological changes. To ascribe the neuroses of the menopause to psychic conflict is to express a partial truth.

Cyclothymia.—Finally, I would refer very briefly to the bewildering problem of cyclothymia and its

less frequent but more obvious manifestation of manic depression. I fancy there is no analyst of any experience but has been fooled by a cyclothymic. Without recognising the true character of the condition, we begin an analysis of a patient who appears to be suffering from an anxiety neurosis. Sooner or later the patient begins to improve, and if the analyst is human he begins to congratulate himself until he recognises the true situation either by undue exaltation or by an inexplicable relapse into depression. If we watch such a case over a period of several years, we recognise that the emotional reactions belonging to one phase have no relation to those manifested in the opposite phase; we note generally a fairly exact periodicity, and above all the fact that the transition from one phase to another is totally independent of emotional factors—favourable or adverse. Patients of this type are prone to be "cured" by whatever treatment happens to be in use at the time that the change comes. I cannot say whether the milder manifestations of cyclothymia are classed as neuroses by those who claim that every neurosis is caused by a psychic conflict, but I am very certain that the key to this problem will never be found in the realm of pure psychotherapy.

Conclusion.

In conclusion let me say that I have spoken, it may seem, in a derogatory way of analytical treatment. If I have done so, it is not because I am doubtful of its value or unconvinced by its successes. Rather do I feel that the therapeutic contribution of analytical psychology is too important and its possibilities too valuable to be exposed to criticism and even ridicule because of the apparent incapacity of certain analysts to correlate their psychological theory with physiological observation.

THE CULTIVATION OF TISSUES IN SALINE EMBRYONIC JUICE.

BY CHARLES A. PANNETT, B.Sc., M.D. LOND., F.R.C.S. ENG.,

PROFESSOR OF SURGERY, UNIVERSITY OF LONDON; DIRECTOR OF SURGICAL UNIT, ST. MARY'S HOSPITAL;

AND

ARTHUR COMPTON, D.Sc., M.B. R.U.I.,

FIRST ASSISTANT TO THE SURGICAL UNIT, ST. MARY'S HOSPITAL.

IT is 13 years since Harrison[1] first demonstrated that tissue cells would grow outside the body. It required little imagination to perceive that by this fundamental observation several fields of investigation were likely to be opened up; there was the possibility of old problems being attacked by new methods and of knowledge accruing which would almost certainly throw light on the mystery of malignant disease. The expected development of a technique by which tissue cells could be cultivated with the ease and certainty associated with the artificial growth of bacteria has failed to materialise. Many new facts have been learnt, but the plasma method worked out by Burrows, Carrel, Ebeling, and others has proved rather troublesome in its application to elucidate the problems of the growth of tissue cells. More than anything, a simplified but certain means of inducing cells to grow is a necessity if progress is to be made. This aspect of the subject was attacked in this country by A. H. Drew,[2] who in 1922 published the formula of an artificial culture medium from which plasma was eliminated. This was the starting-point from which proceeded the investigations dealt with in this communication. A great deal of time was spent at the initiation of the experiments by attempts faithfully to follow the description of Drew. It was found impossible to prepare the saline medium according to this investigator's account, owing to the fact that magnesium hydrogen phosphate $MgHPO_4$ is practically an insoluble salt. For this reason Drew's medium was discarded and a saline solution prepared, which, as far as possible, contained the inorganic elements found in plasma in similar concentrations. The next object in view was to ensure that the solution should have a hydrogen-ion concentration optimum for growth and that it should not easily change; that the solution, in fact, should be buffered. The carbonate-bicarbonate system, whilst a very desirable one, was rejected in favour of the phosphate system, the latter having the advantage of being made up of solutions which will stand autoclaving. The saline solution which has given the best results is made up as follows:—

Stock Solution A.

Sodium chloride NaCl	12·11 g.
Potassium chloride KCl	1·55 g.
Calcium chloride $CaCl_2$	0·77 g.
Magnesium chloride $MgCl_2 6H_2O$	1·27 g.
Water	100·00 c.cm.

Stock Solution B.

M/69 sodium dihydrogen phosphate $NaH_2PO_4 \cdot H_2O$	5 c.cm.
M/69 disodium hydrogen phosphate $Na_2HPO_4 \cdot 12H_2O$	55 c.cm.

These solutions are autoclaved. For use take: Distilled water, 90 c.cm.; stock solution A, 4 c.cm., and autoclave. When cool, add 6 c.cm. of stock solution B with a sterile pipette. The resulting clear fluid will be referred to in future as the saline solution.

The pH of the solution lies between 7·3 and 7·6, using phenol red as the indicator. A comparison of the proportions of the several acids and bases in it with those found in plasma exhibits a fairly close agreement.

1000 c.cm. plasma of man contains*:—		The recommended solution contains:—	
Na_2O	4·290 g.	Na_2O	2·618 g.
K_2O	0·393 g.	K_2O	0·360 g.
CaO	0·155 g.	CaO	0·155 g.
MgO	0·101 g.	MgO	0·100 g.
Cl	3·612 g.	Cl	3·695 g.
P_2O_5 (in animals), 0·052–0·085.		P_2O_5	0·082 g.

* R. H. A. Plimmer: Practical Organic Biochemistry, 1915.

The only discrepancy is in the percentage of sodium. This is accounted for by the absence of carbonates in the fluid, a deficiency imposed by the necessity for sterilisation by autoclaving. Owing to the fact, however, that there are the weak phosphoric acid radicals present in the solution, in an amount agreeing with the proportions in plasma, the number of dissociated active, and therefore, from our point of view, significant sodium ions is probably not widely different from that in blood plasma.

It may well be asked whether the solution contains the phosphates in a high enough concentration to be sufficiently buffered for the purposes of growth. The addition of acid to the medium alters the pH according to the following experimental findings:—

Vol. of Solution Used, 5 c.cm., pH 7·4.

Drops N/100 H_2SO_4 (1 drop = 0·025 c.cm.)

Drops	pH	Drops	pH
1 gives	7·2	6 give	6·8
2 give	7·2	7 ,,	6·8
3 ,,	7·0	8 ,,	6·6
4 ,,	7·0	9 ,,	6·6
5 ,,	6·9	10 ,,	6·6

Indicator phenol red in each instance.

When acid is added to distilled water under the same conditions the pH changes very much more quickly, as the following result shows:—

Vol. of Water Used, 5 c.cm., pH 7·1.

Drops N/100 H_2SO_4 (1 drop = 0·025 c.cm.)

Drops	pH	Drops	pH
1 gives	6·6	8 give	4·5
2 give	5·0	9 ,,	3·8
6 ,,	5·0	10 ,,	3·5
7 ,,	4·8		

Drop 1: Indicator phenol red. Drops 2 to 10: Indicator brom-cresol blue.

The buffering of the saline solution is seen to be not of a high order, and although only weak acids are produced by metabolic activity, it was considered

[1] R. Harrison: Jour. Exp. Zool., 1910, ix., 786.
[2] Jour. Exp. Path., 1922, iii., 20.

to possess rather a narrow margin of safety. Tissues will grow if the proportions of phosphates, and so the degree of buffering, are increased even up to M/50 concentration, but this raises the amount of the phosphate to an undesirable figure, and was proved to be quite unnecessary when tissues are grown in embryonic juice as described below, for the buffering of this juice is much greater than that of the original solution.

The following experiment shows this:—

Vol. of Saline Embryonic Juice Used, 5 c.cm., pH 7·3.

Drops N/100 H_2SO_4 (1 drop = 0·025 c.cm.)

Drops		pH	Drops		pH
1 gives		7·3	9 give		7·0
2 ,,		7·3	10 ,,		7·0
3 ,,		7·2	11 ,,		7·0
4 ,,		7·2	12 ,,		7·0
5 ,,		7·2	13 ,,		7·0
6 ,,		7·2	14 ,,		7·0
7 ,,		7·2	15 ,,		6·9
8 ,,		7·1	16 ,,		6·8

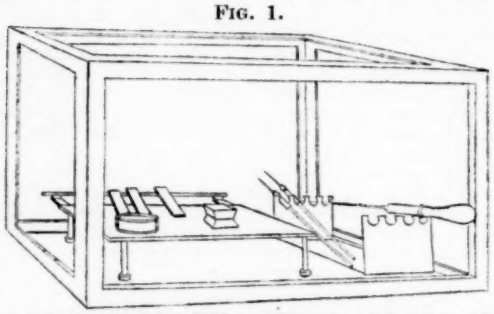
Indicator phenol red in each instance.

This is an extremely important fact, and the explanation would appear to be that amino-acids and proteins of the extract exert their well-known action in this respect. This is in agreement with Meyerhof's hypothesis for muscle, that this tissue possesses in its colloids more effective buffering substances than in its inorganic salts.[3] The pH of the drop of fluid after growth in it has taken place for 48 hours was found by a perhaps rather inexact estimation with phenol red to be unchanged. The technique employed for obtaining cultures differs somewhat in detail from the method of other investigators and will now be described.

Apparatus Required.

(1) A box such as has been described by Drew is of inestimable value. With its aid cultures have been made throughout these investigations in a laboratory in which there is a great deal of human traffic. Yet an infection is a rarity. The box can safely be left open on the side facing the operator, and, if the work be done on a glass slab or tiled bench, it is of advantage that there should be no bottom to it. Before beginning, the inner surfaces of the box are simply wiped with a clean wet cloth (Fig. 1). Other requisites

FIG. 1.



Box and apparatus for making cultures in a laboratory where much other work is carried on.

are: (2) a metal plate on which to perform manipulations with a rod running parallel to it to act as a rack; (3) a metal rack for supporting pipettes and needles; (4) microscopic slides; (5) glass squares, made by cutting microscopic slides into three equal parts; (6) glass rings, 20 mm. in diameter and 2 mm. thick, ground top and bottom; (7) small wool-plugged centrifuge tubes; (8) pieces of glass tubing, wool-plugged at each end, for drawing out in the blowpipe to make pipettes; (9) a cement made up of equal parts of paraffin wax, melting point 52° C., and vaseline (a number of cements have been tested; pure paraffin wax is pervious to air and allows evaporation to take place through it; mixed with an equal quantity of vaseline it has not this drawback); (10) carbon dioxide snow, easily prepared from a cylinder of compressed gas; (11) forceps and fine scissors; (12) glass blocks; (13) small Petri dishes: (14) two metal needle-holders and No. 10 Hagedorn needles. Nos. 2, 3, and 14 are sterilised by flaming, 4 to 8, 12 and 13 by dry heat at 150° C., the instruments by boiling or dry heat.

[3] Pflüger's Arch., 1922, cxcv., 22.

Method of Setting Up Cultures.

Embryonic mouse and chicken tissues have been used. The latter are the more convenient, and have the advantage that the age of the fœtus is accurately known. The blunt end of an incubated egg having been washed over with alcohol, the shell is cracked and an opening made large enough to extract the embryo, which is put into a small Petri dish, where it is washed in the saline solution. It is then placed in a hollow glass block, where it is cut up with scissors until it becomes a mush. This is transferred by pouring into a sterile wool-plugged test-tube. The tube is then inserted into the carbon dioxide snow, where its contents quickly freeze hard. After thawing the process is repeated. Approximately an

FIG. 2.

Slide, cell, and covering-glass square in readiness for placing in the incubator.

equal volume of saline solution is then added to the thawed product, which is shaken up well, and sedimentation allowed to take place for a few minutes. The supernatant liquid pipetted off, centrifuged to clear it further, and diluted with an equal volume of saline solution, constitutes the culture-medium. Embryos of 10 to 14 days are most convenient for making the saline juice.

The cells in which the tissue is cultured are made as follows. In a porcelain dish or seamless metal syringe-box, some cement is melted and heated enough to ensure its sterility. A glass ring is then seized with fine forceps, plunged into the molten cement, and dropped on to a sterilised microscopic slide, which is gently warmed on the under surface to render the junction of ring and slide quite impassable to air. The slide is then placed ring downwards, leaning on the rack and metal stage. The tissue to be cultivated is dissected from the embryo and, after rinsing in the saline solution, is cut up into small pieces by means of the Hagedorn needles, which have, of course, cutting edges. The prepared slides are then arranged on the metal stage, rings upwards, and on each is dropped from a pipette a small volume of the culture-medium. With the needles a piece of tissue is placed on each slide and the drops of solution spread out by manipulation. Unless the tissue adheres to the glass, growth will not take place. Adhesion fails to occur if the drop be too large. Each cell is then closed by covering it with a heated glass square. The whole cell is then inverted so that the drop of culture-fluid hangs dependent from the microscopic slide. The preparations are placed thus in the incubator. The cell is seen in Fig. 2.

Results to be Expected from Exhibition of This Technique.

If the above instructions be scrupulously followed, growth of fibroblasts can be confidently predicted in nearly every preparation (see Figs. 3–6). Frequently there is 100 per cent. of growth; the average works out at approximately 85. Growth can usually be detected in 18 hours, and it reaches its maximum intensity ordinarily in about 18 hours. Tissue cells, however, are far less robust than bacteria, and are much more exacting in their requirements. The method is pre-eminently suitable for the growth of fibroblasts. Since observations under the microscope must take place through the thickness of a microscopic slide, high powers cannot be used. The preparation of stained specimens is, however, very much

simpler and more easy than when cover-glasses are employed. An excellent fixing medium is 5 per cent. acetic acid in 70 per cent. alcohol. Staining is done by Heidenhain's iron hæmatoxylin method.

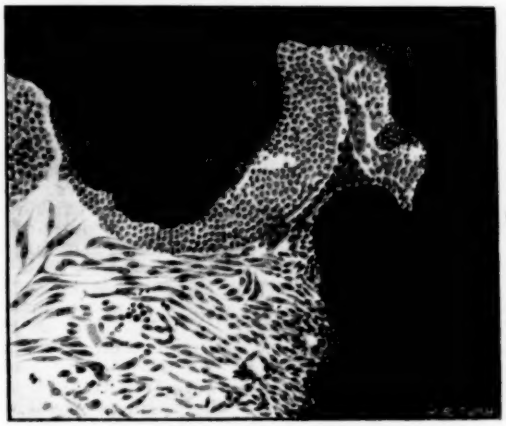
Growth will not continue for more than about three days after it has begun. Then signs of degeneration appear. What is the cause of this cessation of growth? The possibilities which have been considered are disappearance of nutritive material, lack of oxygen, the accumulation of injurious products of metabolism. The problem of continued growth in saline juice resolves itself into the discovery of a

FIG. 3.

Fibroblasts growing in saline embryonic juice. Fifty-three hour culture of muscle tissue from eight-day chick embryo.

device for maintaining the conditions in being which were present at the initiation of the experiment. A further communication on this subject will be made. It suffices here to say that the degenerative processes from our observations are due to the accumulation of metabolic waste material in the medium. With the technique described it has not been found possible to get continued growth for longer than six to seven days, though there is not the slightest doubt that this problem can and will be solved, so that maintained growth will be as possible as with plasma technique. Those who have worked at tissue culture will recognise how much more convenient is the examination of growths when fibrin is absent and the cells are all arranged in one extenuated sheet. The development of a technique along these lines is much to be desired.

FIG. 4.

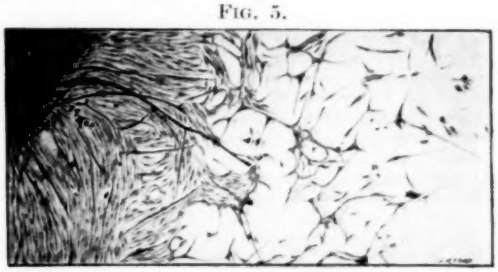


Growth of fibroblasts and epithelium from the subcutaneous tissue and skin of a six-day chick embryo. Forty-eight hour culture.

The Part Played by the Saline Medium in the Growth of the Tissue.

The saline solution is not to be considered as a culture-medium sufficient in itself. It is true that growth will often take place, sometimes quite

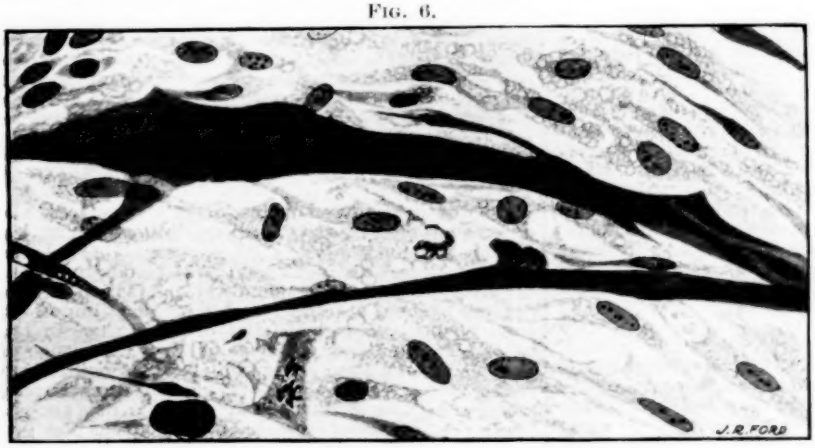
FIG. 5.



Fibroblasts and embryonic muscle fibres growing from a piece of muscular tissue of an 11-day chick embryo, cultivated for four days. The piece of tissue was transferred to a new cell after 48 hours.

vigorously, if a piece of tissue is simply placed in the solution alone, but its occurrence is not to be depended upon. The essential nutritive material is contained in the embryonic juice. Cultures can be obtained if normal saline solution made with tap-water be substituted in preparing the extract, but the degree of success attending its use is rather uncertain. For one thing, the pH of normal saline made in the ordinary manner is not very constant, and apt to be too alkaline for ideal conditions; whilst washing the tissues in it must partly deplete them of all those inorganic constituents which are missing in its composition but

FIG. 6.



A part of the preparation shown in Fig. 5 under a higher magnification.

present in the lymph which bathes the tissue. For these reasons, a saline solution of certain composition approximating to that of plasma, as far as inorganic constituents are concerned, of known pH, and buffered to some extent, appears to be a much preferable medium to employ. When a certain amount of growth takes place without embryonic juice, it seems fairly clear that the necessary food material is derived from the central part of the implanted tissue which dies and macerates. It is an uncertain process upon which to rely.

This communication concerns itself solely with technique. It is not the place to describe the behaviour of cells in artificial culture. The biological needs of the growing cell are very imperfectly known. Yet step by step the conditions which must exist will eventually be discovered. In such a quest the standardisation of the controllable factors is essential. This work is an attempt to effect this in the case of the inorganic constituents of the medium in which the tissues are grown. It has been done as part of the activities of the Surgical Clinical Unit at St. Mary's Hospital in the constituent laboratories of the Pathological Institute, facilities having been generously accorded by Sir Almroth Wright, Dr. John Freeman, and Prof. B. J. Collingwood, to whom we offer our most grateful thanks.

THE ACTION OF BAYER "205" IN TRYPANOSOMIASIS.[1]

BY F. K. KLEINE, M.D.

BAYER "205" is a complex organic body which contains neither arsenic, mercury, nor any other metal and thus differs from other remedies so far used in sleeping sickness. Chemo-therapeutically, it is standardised to act in such a manner that a mouse infected 24 hours before with nagana trypanosomes can be permanently cured of trypanosomiasis by a single injection of 1/10 mg. per 20 g. body-weight. Clinically, results as good as those recorded by Dr. G. C. Low and Dr. P. Manson-Bahr[2] have been obtained by other investigators.

In a recent expedition to Africa an experimental station was established at Ndombo, a negro village in the neighbourhood of Mpika, and later in the Belgian Congo. The parasites are transmitted by tsetse flies, but not directly. A fly feeding first on an infected and then on a healthy person does not infect the latter with its proboscis as with a vaccinating lancet. Before the fly becomes infective the parasites it has ingested must undergo a certain development which requires several weeks for its completion. Thus the parasites and glossinæ stand in a similar relation to each other as do malaria parasites and anopheles.

The trypanosomes in animals studied in this expedition were (besides *T. theileri*) *T. brucei*, *T. congolense*, and parasites of the *T. vivax* group. These can be differentiated by their morphology and specific pathogenesis. In human beings two kinds of trypanosomes may be observed, *T. rhodesiense*, the producer of the sleeping sickness in Rhodesia, transmitted by *Glossina morsitans*, and *T. gambiense*, the producer of the ordinary sleeping sickness on the Congo, transmitted by *Glossina palpalis*. The morphological difference of the two kinds may not be constant. The fact that two species of *Glossina* are involved does not disprove the identity, as both these flies are able to transmit both trypanosomes.

Attempts to Induce Prophylaxis in Cattle.

From the point of view of the economic life of South Africa, as well as that of the Congo, it is of special importance to know whether it is possible to protect cattle prophylactically against trypanosomiasis so that valuable animals can be driven without danger through infected areas to healthy places. For this reason it was attempted to find out first of all how long after the administration of Bayer "205" the prophylactic protection lasted.

The methods employed in Rhodesia were as follows: Fly-catchers were sent out to collect a few hundred flies which were allowed to feed on animals previously treated. On the following day the flies were fed on a healthy dog. If the dog became infected it was a clear indication that the cattle had also been bitten by infective flies. In the Belgian Congo, where a larger number of cattle were available, animals treated with Bayer "205" were allowed to be bitten by flies under natural conditions. As soon as trypanosomes were found in the blood of the control animals, all animals were withdrawn from the fly-belt and transferred for further observation to a place which was free of flies. As a result of these experiments in Rhodesia and on the Congo it was shown that even after large doses of Bayer "205"—e.g., 10 g. for a bullock of about 5 cwts., repeatedly given, it was not possible to prevent infection by trypanosomes. *T. theileri*, as well as *T. vivax* are scarcely influenced by the drug. The development of *T. congolense* and especially *T. brucei* is suppressed for a short period and, sometimes after several weeks, the trypanosomes will reappear.

Special attention was paid to the action of the drug in *T. brucei* infections. In its numbers in the blood as well as in its capacity for development this parasite was restrained in such a way that to prove its existence in the blood of cattle it was necessary to inoculate monkeys with large amounts of the blood. Even after its transmission to monkeys, there were certain indications of the continuation of the action of the drug. A normal, uninjured strain of *Trypanosoma brucei* can easily be detected microscopically in monkeys' blood, but parasites originating from the treated cattle could be found only with difficulty and sometimes they would disappear entirely for many days. Their virulence was reduced and the enlargements of the spleen in diseased animals was only slight. In spite of their slight virulence, the trypanosomes did not react to the dose of Bayer "205" generally effective. In experiments of this kind it is imperative to ascertain for each species of animals the dose *which under normal conditions* exercises an influence on trypanosomes, the sensitiveness of the parasites to a drug depending largely on the type of animal host and must not be estimated on the basis of weight when different species of animals are under consideration.

Again, while it is possible by injections of Bayer "205" to render mice immune against subsequent infections of trypanosomes for months, a complete protection in cattle has not yet been obtained. The diminished virulence of the trypanosomes resulting from the action of Bayer "205" was, however, noticeable in the experimental cattle. Combinations of this drug with tartar emetic gave greatly improved prophylactic and therapeutic results. It is still too early to draw any conclusion as to the possibility of practical prophylaxis.

Experiences in Treatment of Trypanosomiasis in Humans.

A more definite demonstration of the value of the drug is afforded by the experience gained in treating human trypanosomiasis. Three stages of sleeping sickness were distinguished: (1) blood infection, (2) enlargement of the glands, (3) infection of the nervous system. Stages 1 and 2 are most important from an epidemiological point of view, since in the initial stages natives go about without knowledge of their illness and form a constant source of re-infection for the flies. Whether patients suffering from sleeping sickness can be spontaneously cured is not known, but on the analogy of other diseases this seems possible.

Results in Rhodesia.—In Rhodesia 35 patients were treated. How many belonged to the third stage cannot

[1] An abstract of a paper read on Feb. 21st to the Royal Society of Tropical Medicine, in whose Proceedings the paper will appear in full. [2] THE LANCET, 1922, ii., 1265.

definitely be ascertained, as a lumbar puncture was rarely made before the beginning of treatment, but the percentage is probably a high one, since about half the patients had to be carried into camp. The diagnosis was made by demonstrating parasites in the blood and a subcutaneous injection of 1 g. of Bayer "205" in 5 c.cm. of warm physiological solution of sodium chloride was given under the skin on the back near the spine, at the height of the middle of the scapula, and was repeated twice at an interval first of 10 and then of 18 days. Patients with trypanosomes in the cerebro-spinal fluid (C.S.F.) or showing a relapse on blood examination were given a fourth and fifth injection. The pain following the injections varied—some experienced very little discomfort. Sometimes an inflammatory swelling occurred, disappearing in a few days, and formation of abscesses occurred in four cases.

The clinical results of the treatment were controlled by frequent blood examinations. One European who discharged himself prematurely died later on from sleeping sickness, and one native died suddenly and unexpectedly seven days after he had received his fourth injection, no autopsy being obtainable; but the remaining 33 patients showed after a few weeks a surprising improvement in bodily strength. In October, 1922, about three months after the commencement of treatment, lumbar punctures were made in 21 patients, and in 8 of these trypanosomes were found in the C.S.F., the blood being free from parasites. Whether the trypanosomes finally die off or whether an aggravation of the clinical condition eventually occurs cannot yet be stated. The cases in which trypanosomes were found in the C.S.F. were those who originally presented symptoms of infection of the central nervous system, the symptoms having almost entirely disappeared. Six patients who still had trypanosomes in the lumbar fluid gave a general impression of vigour and performed heavy work. It can only be assumed (1) that Bayer "205" is able to exercise some influence upon the parasites in the brain, and (2) that the trypanosomes which are not killed off at once in the body by its agency are greatly reduced in virulence.

On April 13th, 1923, the death of three treated persons was reported, two of them having been previously noted as being severely affected, and the third having had an abdominal tumour which may have caused her death. The remaining 30 patients were reported to be alive and apparently well, which results can be regarded as exceedingly satisfactory, the period of observation after treatment being between six months and a year.

Results in the Congo.—Of 150 patients under observation in the Congo most belonged to the first and second, and about 10 per cent. to the third stage. The diagnosis was arrived at by microscopical demonstration of living parasites in fluid from enlarged glands in the neck or in the blood; the technique will be found in the full report of the paper. Of 32 patients, 24 had trypanosomes in glands *and* blood, 4 only had them in the glands but not in the blood, and 4 in blood and not in glands. In each patient only one blood preparation and one glandular preparation were examined. Generally speaking, if there are parasites in the glands, they can also be found in the blood. In patients not previously treated it is unnecessary to resort to lumbar puncture for a diagnosis.

In order to determine whether trypanosomes are present in the C.S.F. of patients without nervous symptoms, lumbar punctures were made on 24 mentally normal patients, the result being uniformly negative. Even in psychically abnormal patients trypanosomes were not always to be found in the C.S.F. In such cases, however, the number of lymphocytes is always increased. The patients in the Congo received *intravenous* injections on the first, third, and fifteenth day, 1 g. of Bayer "205" at each injection. The drug was dissolved in 10 c.cm. of rain-water and injected into a vein of the arm. Children received a proportionately smaller dose—viz., 0·4 to 0·6 g.—in the jugular vein. Patients seriously ill and those with trypanosomes in their C.S.F. were mostly treated at ten-day intervals, but more than five injections were never given. Patients prefer intravenous to subcutaneous treatment, as it is painless. Care was taken to use an initial large dose to prevent the parasites from getting accustomed to Bayer "205."

In all persons in the first and second stage of the disease a feeling of improvement was soon noticeable. Strength returned and the glandular swellings subsided. Among 96 patients whose blood was examined every few days for five months after the third injection trypanosomes were found only in the blood of two children, two or three months after the third injection. Whether these were actual relapses or fresh infections cannot be decided. A remarkable improvement occurred in two maniacal patients; of two others, one died accidentally and the other one ran away. Seven patients in the third stage of the disease who had previously been treated with other remedies showed no improvement clinically under Bayer "205"; in two of these patients trypanosomes were found in the C.S.F., but the blood of all of them was permanently free from parasites. Similar results were not obtained by us with atoxyl, salvarsan, or antimony, the trypanosomes always returning to the blood within one to three months.

Certain Disadvantages.—The albuminuria which follows injections of Bayer "205" tends to disappear after a time. Injections should not, however, be repeated too often. The parasites get accustomed to the drug, and its action upon the host cannot be ignored. In cattle treated too intensively a reduction in the coagulability of the blood was followed by inflammation of the kidneys, fatty degeneration of the liver, and jaundice of all tissues. When, after four injections of Bayer "205," trypanosomes reappear and remain in the blood a change to antimony should be made. The actual percentage of patients cured by Bayer "205" cannot yet be stated, but the patients will be re-examined in the course of the year. At any rate, at the present time Bayer "205" would seem to be the best remedy for sleeping sickness.

No definite proposals are made as to the systematic treatment of an epidemic, since various methods can be employed in various parts of Africa. In some parts the natives can be moved from threatened districts, in others the glossinæ may be stamped out. Drug treatment is of importance, since the blood of infected patients can be sterilised for some time, thus withdrawing from "healthy" flies the source of infection.

THE USE OF SILVER FILIGREE IN THE RADICAL CURE OF HERNIA.

BY PERCIVAL P. COLE, M.B., CH.B. BIRM., F.R.C.S. ENG.,

SURGEON TO THE SEAMEN'S HOSPITAL, GREENWICH, QUEEN MARY'S HOSPITAL FOR EAST END, AND THE CANCER HOSPITAL.

IN a recent monograph, "Hernia and its Radical Cure,"[1] the use of silver filigree has been uncompromisingly condemned. The author's conclusions are based entirely on objective evidence, for it is admitted that he has had no personal experience to guide him. The book has been favourably reviewed in the medical press, and the case against the filigree therein presented must be regarded as authoritative, for by silent acquiescence medical journals have approved the author's thesis. THE LANCET[2] says, "comparisons of various procedures are made in a fair and broad-minded spirit," and again, "metal filigrees are condemned, and the author's opinions are confirmed by the increasing rarity with which such materials have been employed in recent years." It is my purpose, first, to defend the filigree, by endeavouring to refute the objective evidence

[1] By J. Hutchinson. Oxford Medical Publications.
[2] THE LANCET, 1923, ii., 333.

brought against it in this monograph, and secondly, to urge its use by the presentment of subjective evidence of personal experience.

To arrive at a correct assessment of an author's conclusions, importance must attach equally to the substance of the objective evidence, and to the method of its employment. What is the substance of the case against the filigree? Do the author's methods of presentment merit the approval thus expressed? The case against the filigree is not gradually unfolded, the evidence is not carefully elaborated before the conclusions arrived at are stated. The author's attitude is quickly and forcibly expressed, and the reader is prejudiced against the method in that the surgeon will, it is stated, be led to resolve "under no temptation will I bury silver wire—or silver filigree either—in a patient's groin." This resolution, it appears, will be forced upon the surgeon by the perusal of Bloodgood's cases published in 1900, and of the late Mr. C. B. Lockwood's cases published in 1905.

The Basis of Criticism.

Now, however eminent the observers, and however convincing their observations, no reasonable surgeon will be bound by the findings of 20 years ago, unless the conditions of practice are essentially the same. It is not too much to say, I think, that a surgical genius, though a boon to his own generation, is sometimes a curse to posterity. His blindly admiring disciples uphold his teaching and advocate his methods of practice long after their utility as an end-product has been superseded. The surgical history of the recent war provided outstanding examples of this blind adherence to methods adapted to the technical facilities of a past era. That the conditions of practice 20 years ago were very different from those that now obtain will be readily conceded. Surgical technique has progressed very considerably, particularly in the domain of foreign body surgery. The Lane plate and the bone graft are outstanding products of modern practice. That the author's sweeping condemnation is entirely unjustified by the references indicated is clearly established by investigation of their substance.

Bloodgood's cases refer to the use of buried silver wire sutures, a very different matter from the implantation of a filigree. Even in this respect it is interesting to note the following passage from Bloodgood's publication.[3]

> Clinically, the results in the healing of the wounds have been much better since the introduction of silver wire and silver foil. Before the introduction of silver wire, 116 cases of hernia had been closed with silk; in 28 of these cases (24 per cent.) there was more or less suppuration. Since silver wire was first used there have been 330 operations with 14 suppurations (4·2 per cent.).

In those days, then, silver wire was found to be a less irritating foreign body than silk! Bloodgood also states that rubber gloves had only been used by him and his assistants as a routine measure since 1897.

The Lockwood reference I have been unable to trace, but in the volume referred to[4] Lockwood discusses the advantages and disadvantages of rubber gloves, and advises against their use in many operations as they interfere too much with tactile sensation.

Discussion.

The style of this initial criticism scarcely augurs well for an impartial survey. In the further discussion of the use of filigree some purely suppositious and unbacked objections are cited. It is stated, for instance, that there is a risk of the filigree "shifting in position or crumpling up, so to speak." No filigree should shift its position once it has been snugly adapted to its bed. Any change of position is an indication not of defective operation but of a defective operator. Again, before crumpling can be urged as an objection it must be shown: (1) that a filigree does crumple, and (2) that such crumpling is detrimental. The construction of the filigree is such as to determine a certain flexibility. This flexibility is of considerable advantage, for it permits an accurate and automatic adaptation of the filigree to the bed in which it lies.

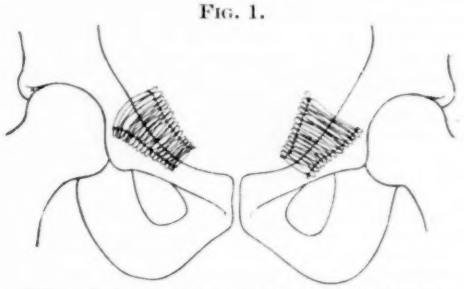
The answer to this objection is, then, first, that the filigree does not crumple; secondly, that its natural flexibility is one of its essential characters. It would appear that this crumpling is a feature alleged to characterise the behaviour of the filigree more particularly in the groin, for it is stated that—

> In the groin (femoral and inguinal hernia) where flexion at the hips, &c., infallibly produces kinking of a rigid body like a sheet of filigree such insertion must be ill-advised.

Incidentally, the discrepancy between the crumpling of the filigree in one passage and its alleged rigidity in another is sufficiently striking.

To controvert this crumpling objection I reproduce tracings from X ray photographs of filigree cases

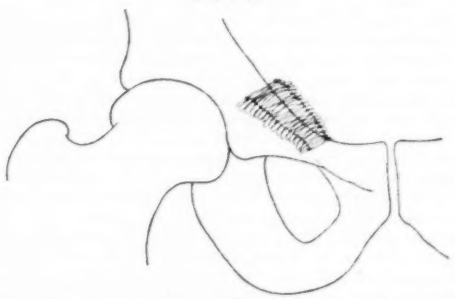
FIG. 1.



Filigree in a case of bilateral direct inguinal hernia.

taken some months after their insertion. In the one case (Fig. 1) the man, a stout seaman, was the subject of bilateral direct inguinal hernia. If ever alleged flexion of the hips could have produced a crumpling up of the filigree it certainly would have done so in this case. In Fig. 2 a tracing is shown of a filigree

FIG. 2.



Filigree in case of oblique inguinal hernia, eight months after insertion.

eight months after its insertion. Flexion of the hips constituted in this case a normal attitude at work, and it is obvious that no crumpling had occurred.

One of the strongest points brought forward to emphasise the alleged defectiveness of the filigree operation is the increasing rarity with which it is employed. This increasing rarity is based on the figures obtained from one of the largest hospitals in Great Britain between the years 1914 and 1919; the name of the hospital is not mentioned. "After 1919 not a single filigree," it is stated, "has been used in any hernia case during the last three years. The only deduction to be drawn is that it has been found to be an unsatisfactory method." It appears to me that such a deduction is entirely unjustified, and that other equally satisfactory explanations might be adduced. As opposed to these figures are those obtained from the Seamen's Hospital at Greenwich, which is by no means one of the largest hospitals in Great Britain and probably has no more than one-third as many surgical beds as that instanced by

[3] Johns Hopkins Hospital Reports, 1899, p. 225.
[4] Transactions of the Medical Society, 1905, Aseptic Surgery in Theory and Practice.

the author. From May 1st, 1922, to April 30th, 1923, filigrees were inserted in 26 cases.

Discussing the use of filigree in the radical cure of ventral hernia, it is stated that—

"Since 1918, so far as I can ascertain, not a single case has been treated by the insertion of filigree by any member of a very large surgical staff. Such a verdict after full experiments of a much-vaunted method renders further comment unnecessary."

"During the years 1910 to 1917 filigree was inserted in a considerable number of cases at the London Hospital, and it had also to be removed in a considerable number."

Now as far as I can ascertain at the Seamen's Hospital, Greenwich, no trouble of any kind has supervened in the 26 cases in which filigree operation was employed during the period of time indicated. My own contribution to this number is 12 cases, and my contribution in other hospitals and in private practice increases the total to double that figure. Throughout the whole of my experience I have only once had occasion to remove a filigree, and that experience will, I feel sure, be endorsed by many other surgeons who have adopted its use and appreciated the scope of its application. Mr. Souttar, himself a surgeon at the London Hospital, is quoted as endorsing all the author's objections to the use of the filigree. The reference given is "Souttar, *Brit. Med. Jour.*, Nov. 25th, 1922, p. 1024," under the heading of the Operative Treatment of Difficult Hernias. On consulting this reference we find that what Mr. Souttar actually did say is: "And the wire filigrees of McGavin have achieved conspicuous success."

In this article Mr. Souttar draws attention to another method dealing with difficult hernias, and it is surely more than likely that a method elaborated by a London Hospital surgeon should be employed by other surgeons at the London Hospital.

What is to happen to cases of hernia in which an adequate barrier consisting of the patient's own tissues cannot be constructed? No one, even the most ardent advocate of the filigree, pretends that its use is indicated where such an effective barrier is available. The whole question hinges on operability rate. One gathers from Mr. Hutchinson's work that cases in which the patient's own tissues are so defective as to preclude a reasonable hope of radical cure by their means, must be relegated to the weary army of truss wearers. I can find, in perusing this book, no accessory means of ridding these patients of their infirmity. Some interesting side-lights on this question of operability may fruitfully be considered. Thus on p. 37 the question of the advisability of operating on recurrent hernia is discussed, and the author's views are supported by the narration of the gloomy happenings that took place in the cases of 11 recurrent inguinal hernias operated on in St. Thomas's Hospital in 1896; seven cases suppurated, and two of these died of septic peritonitis. This narrative may mark a stage in the history of surgery, but that it can have any possible effect in deciding for or against the question of operability in recurrent hernia is surely incredible.

Again, in discussing direct inguinal hernia, the author's outlook is very conservative:—

"Some surgeons hold that direct inguinal hernia is not suitable for the operation for radical cure as recurrence is so apt to take place after it. However, I have seen several cases in which success was obtained and believe it is worth while to make the attempt provided the patient is a suitable one, that is, he is in good general health, not too fat, and free from any contributory causes, such as stricture of the urethra, &c."

In umbilical hernia the indications for operation are particularly vague. "I would urge," says the author, "that every case that is at all hopeful should be submitted to operation for radical cure." The hopefulness or otherwise of a particular case can only be guessed at by a description of a typical case, which is "a hernia the size of one's fist, irreducible for long, occurring in a stout and middle-aged woman."

What is the attitude of the filigree user towards these types of hernia? It is this: Recurrent and direct inguinal hernia, umbilical and ventral hernia, are operated on as a routine, and the patient's general condition must be very bad to determine a refusal. A considerable proportion of the cases of hernia at the Seamen's Hospital are direct cases, and were the surgeons at that institution to adopt a conservative attitude, these men would be deprived of their means of livelihood. Owing to the particular and restricted nature of the practice at the hospital, the failures return to the home of their origin. I have seen and heard of many recurrences after ordinary operations; I have never seen or heard of a case in which filigree implantation resulted in failure in any type of hernia.

Points in favour of the filigree are almost ignored, but the following grudging admission is made:—

"It should be noted in opposition to the unfavourable judgment given above that the insertion of silver filigree has had (and possibly still has) warm advocates."

In another part of the book, however, Mr. Lawrie McGavin's article on hernia in Choyce and Beattie's "System of Surgery" is quoted. Mr. Hutchinson expresses considerable surprise that the use of filigree should be so warmly advocated in such a modern work. In the last edition of this same work (Choyce and Beattie) the article on hernia has been revised by the editor, Mr. C. C. Choyce, and advocacy of the filigree is no whit less warmly urged.

Case Records.

The filigree, then, not only has had, but still has warm advocates: Lawrie McGavin and C. C. Choyce have recorded their faith in print, and I may be allowed perhaps to rank myself among the number. I propose to justify my attitude in this respect by the inclusion of some typical cases recently operated on.

Female aged 47. Appendix removed 1912, emergency operation for septic peritonitis 1919. Four months later operation for adhesions; 1920–22 gradual growth of a hernia through the left paramedian incision. She was admitted under my care, operation having been refused by other surgeons. She had a large hernia protruding through an aperture 2½ inches in diameter. The abdominal wall was a mass of scar tissue. A filigree was inserted measuring 4 inches by 4 inches. The operation took place on Nov. 24th, 1922, and she was discharged on Jan. 4th, 1923. No sign of recurrence; wound soundly healed.

Female, aged 48, very stout, with a large ventral hernia in the mid-line reaching from the umbilicus to the pubes. A filigree, 6 inches by 4 inches, was inserted, as extensive dissection demonstrated that patient's own tissues could not be utilised to form an effective barrier. Patient has been perfectly comfortable, the abdominal wall is quite sound.

Seaman, aged 36, very stout; bilateral double direct hernia with no definite sac, but diffuse and pronounced bulging of the whole posterior wall of the canal; conjoined tendon very poorly developed. This patient, contrary to usual custom, was operated on with a general anæsthetic as he refused stovaine intrathecally. He developed bronchopneumonia and coughed continuously for a fortnight. Filigree both sides (Fig. 1); wound healed normally.

Seaman, aged 59; large direct inguinal hernia, containing portion of bladder and a large mass of extra-peritoneal fat. Conjoined tendon very poorly developed. Filigree inserted. Convalescence uneventful.

Surgeon; left inguinal and femoral hernia, small oblique inguinal sac, large direct protrusion of extra-peritoneal fat; large mass of extra-peritoneal fat forced through femoral ring into thigh. Operation Sept. 26th, 1922; stovaine intrathecally, no general anæsthetic. Filigrees inserted. Since operation he has not hesitated to perform actions which incur considerable stress, such as cranking his car, carrying heavy weights, &c. No sign of any recurrence; operation area is perfectly sound.

Pathologist; oblique inguinal hernia with diffuse bulging of the posterior wall of the canal; conjoined tendon poorly developed. Operation January, 1923 (Fig. 2); convalescence uneventful. No sign of recurrence, operation area quite sound.

Ex-sergeant-major, Royal Engineers, aged 28; right recurrent inguinal hernia; operated on twice in the army, worse after each operation. When demobilised wished to enter Colonial Service, but was rejected by colonial medical officer. Operation August 23rd, 1923. The groin was a mass of scar tissue; cord verified, and isolated with great difficulty; large direct inguinal hernia, loculated sac full of adherent omentum. Hæmatoma discharged on the eighth day and continued to do so for five days. Left the nursing home in three weeks soundly healed. When seen in November the side operated on was, if anything, stronger than the side unaffected. He has now been passed for service abroad.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

A MEETING of the section was held on Feb. 8th, Mr. A. L. WHITEHEAD, the President of the section, occupying the chair.

Operation for Senile Cataract.

Mr. BASIL LANG read two papers on related subjects, the first entitled A Modification of the Usual Method of Removing the Lens in the Extraction of Senile Cataract and the second A Modification of the Usual Method of Needling the Lens Capsule after Cataract Extraction.

In the first of these contributions he referred to a case he was told of in which a tumour was seen in one eye, lying over the ciliary body, and this tumour was regarded as malignant. No lens could be seen behind the pupil. The eye was excised and section showed it to be the lens; it had apparently been forced into that position when an attempted extraction was done. He remarked that the lens did not always begin to come forwards on the first pressure of the cornea below. Though he had watched many operators, he had rarely seen the lens born without some coaxing, or aided by the cystotome. The first effect of placing the curette on the lower part of the cornea was to decrease the intra-ocular volume, and he went on to explain in detail what he considered happened, from the point of view of mechanics, at each stage in the operation. He thought it would be distinctly advantageous if the hole through which the lens was to be delivered could be made as deep as possible in the antero-posterior diameter; this was his modification of the customary technique. Having completed a large section he lacerated the capsule with the cystotome. With the patient looking down, he pressed the scoop flat on the sclera at the 12 o'clock position with its edge in contact with the wound, and he pressed it backwards towards the centre of the globe. The wound began to gape, and the vitreous forced the lens forwards against the under surface of the cornea. Further pressure increased this gaping, and the lens began to force the iris in front of it out of the wound. On further pressure the lens edge was seen to stretch the iris until it came close up to the pupillary border, and now for the first time Mr. Lang applied pressure below with the curette against the cornea. The iris was never subjected to pressure between the sclera and the lens, and apparently had not lost its tone, and the slightest touch with the repositor or the stream from the irrigator caused it to return within the eye, and the pupil assumed a central position. His modification, he submitted, rendered the operation both simple and safe. At Moorfields, before he adopted this modification, he had 5 prolapses in 43 straightforward simple extractions. He had given up using eserine drops. In the last 31 cases at the same hospital he had had only two prolapses, one of which should not be brought into the series as the iris of that was atrophic. By avoiding damage to the iris iritis did not follow the instillation of eserine. The iris did not lie flaccid and toneless in contact with the wound; rather it was taut, thus allowing any escaping aqueous to run over its surface.

In his paper on his modification for needling the lens capsule after cataract extraction, Mr. Lang said that after the lens had been removed and the eye was quiet, it was desirable to make a hole in the lens capsule, otherwise at a remote date the visual acuity would begin to be reduced. At that date the capsule would have lost its elasticity and the operation would be difficult as the incision would not gape and any flap cut would fall back into its original place and continue to occlude the pupillary area. The needling was intended for its remote benefit rather than its immediate. In former days eyes were lost from one of two reasons: sepsis, or glaucoma, due to the angle becoming blocked by vitreous, or by exudate from a chronic cyclitis, or from both causes. The sepsis resulted from the operation tract becoming infected with organisms from the conjunctival sac, and it could probably only occur if the needle was made to enter the anterior chamber by passing it directly through the cornea. To avoid this the needle should be passed subconjunctivally into the anterior chamber. To make more sure, the surface of the conjunctiva could be painted at the point of entry of the needle with a 1 per cent. solution of silver nitrate. Whenever vitreous got into the anterior chamber glaucoma was liable to occur. This was why dislocation of the lens occasionally ended so disastrously in glaucoma: for this reason he did not advise patients to have the lens removed in its capsule, as that left the vitreous unsupported. He was careful to procure a needle of suitable proportions; if the shaft of the needle was of the correct diameter it just filled the hole and prevented escape of aqueous. If the shaft diameter were 1 the width of the blade should be 1½. His habit was to use a Bowman's stopped needle, not a Ziegler's knife; moreover, it was rarer to find the latter with a shaft the correct size. The sooner the operation was done the easier it was. He never divided the capsule if there was any quantity of unabsorbed lens matter. In the latter event, when the eye was white, he passed the needle into the anterior chamber, rotating the shaft through 90°, moving the blade paddle-fashion to stir up any lens matter. He then had the eye hot bathed, and in a few days the lens matter had been absorbed. He described his procedure with a wealth of detail. He had the room darkened and good focal illumination to enable one to see the gossamer-like posterior capsule. With a needle of the correct proportions none of the aqueous would escape from the anterior chamber, and the capsule could be cut three or four times if necessary. He summed up the advantages of this modification as follows: It was easy, it avoided the possibility of sepsis, it obviated the possibility of glaucoma, and it eliminated the necessity of stirring up the vitreous.

Dr. W. H. BRAILEY emphasised the importance of tilting the lens forward while it was being extracted. In regard to needling, he agreed that the vitreous coming into the anterior chamber was the most common cause of the subsequent onset of glaucoma following cataract extraction. The worst cases of glaucoma were due to the ingrowing of corneal epithelium through the wound.

Sir RICHARD CRUISE said it was most important to produce in cataract extraction the tilting forward of the lens which Mr. Lang had spoken of. He described the technique which he had himself employed during the past 14 years. In that time he had had only three cases in which there was slight adhesion of the iris to the lip of the wound. In none of his cases had there been prolapse.

Mr. J. GRAY CLEGG said he would be reluctant to do discission in early stages; most of his cases returned with excellent acuity of vision without this having been resorted to.

Mr. T. HARRISON BUTLER spoke of the importance in his view, of avoiding all forms of pressure in the operation. He expressed himself as an advocate of Ziegler's method of operating and of his knife. When sepsis occurred in these cases he felt sure it often came from within, from material circulating in the blood stream.

Mr. H. KIRKPATRICK said that the modification described by Mr. Basil Lang was not so radical as that which had been carried out at Madras for ten years. He detailed his own method of procedure.

The PRESIDENT said he had now reverted to the combined operation, with which he was quite satisfied. Mr. Basil Lang's modification was very interesting and probably some members would try the preliminary pressure above before exerting the usual pressure from below.

Mr. LANG replied.

Classification of Diseases of the Choroid.

Mr. MALCOLM L. HEPBURN read a paper on this subject. He said the nomenclature in relation to diseases of the choroid had always, in his view, been unsatisfactory, and there seemed to be no settled opinion as to the ætiology and course of the disease processes attacking the choroid. Fundus diseases ought to be classified according to the structure in which they occurred. The results of classification by position alone were that the terms retino-choroiditis, myopic choroiditis, choroidal atrophy, degenerations, holes, &c., were applied indiscriminately to all sorts of diseases, regardless of their pathological meaning, or whether they originated in the choroid or the retina. In this paper he dealt with choroid only. All such conditions were associated with pigmentary disturbances, but in solely retinal affections no such changes occurred. The American "Encyclopædia of Ophthalmology" contained 26 forms of choroidal inflammation which seemed to require separate headings. The classification he now put forward fell into five groups: (1) inflammatory; (2) vascular; (3) degenerative; (4) congenital; (5) new growths. The need for discriminating between the first two groups was, that in the recent stage the treatment was quite different. At present the term retino-choroiditis was used to describe both acute and scarred forms, whereas it really implied an acute inflammation. The clinical features associated with inflammatory diseases of the choroid were vitreous opacities, and sometimes keratitic deposits in the acute stage, with scotomata in the usual field. The paper was illustrated by a number of drawings.

Mr. RAYNER D. BATTEN said that even after hearing Mr. Hepburn's paper he still claimed a special place in classification for diseases of the macula, which area was singled out, anatomically, physiologically, and clinically, from the rest of the fundus. Both choroid and retina showed special reactions to disease in the macular area. He based his claim chiefly on clinical grounds, instancing that the area was comparatively exempt from attacks of syphilitic and tuberculous disease. The greatest support for his contention was in the establishment of the maculo-cerebral group. He showed a large number of drawings by means of the epidiascope in elaboration of his views.

Exhibition of Cases and Specimens.

Mr. A. D. GRIFFITH showed a male with tuberculosis which had started in the optic nerve head. When the patient was first seen there was no vitreous effusion, and the mass was obviously arising from the nasal half of the optic disc and the immediately surrounding retina. Since that date it had passed nasally forwards into the vitreous, leaving a patch of apparently normal retina between the mass and the nerve. The man had had pulmonary tuberculosis. Wassermann was negative. He also showed a baby which was brought to the hospital four hours after birth, with the right eye luxated forwards out of the orbit. It was a forceps delivery on account of placenta prævia. There now seemed to be a weak attachment to the globe. The optic nerve showed simple atrophy; clearly it had been ruptured.

Miss ROSA FORD sent a case (shown by Mr. M. HINE) of ethmoidal mucocele in a woman. Three weeks ago, when first seen, she complained of her eyes hurting her and watering. She also had occasional momentary diplopia and a chronic discharge from the right side of the nose. When, at 6 years of age, she had scarlet fever, a lacrymal abscess on the right side was opened. At about the same date she had a chronic discharge from the left nostril. There was now a cystic swelling in the left orbit, extending above and below the internal tarsal ligament, and just above the latter there was a small and rather sharp prominence in the orbital margin. On extreme movement in any direction diplopia resulted. There were no fundus changes in the left eye, and the vision was 6/9. Mr. Gay French regarded it as an ethmoidal mucocele.—Mr. GRAY CLEGG spoke of a similar case and recommended that this be dealt with from the inside.—Mr. HARRISON BUTLER considered it might be a frontal sinus condition and that the case should be handed over to a rhinologist.—Mr. R. AFFLECK GREEVES also favoured the view that this was a frontal mucocele, as the ethmoidal cases he had seen pointed lower down.—Mr. R. LINDSAY REA said that to get a good skiagram in such a case as this it was necessary to use a hard tube, preferably one with a 12-inch spark-gap.—The PRESIDENT considered this mucocele fronto-ethmoidal in origin. He agreed it should be attacked from the interior, on the nasal side. It was clearly a case to be dealt with by the rhinologist. It should give a good result, with no scarring whatever.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

A MEETING of the Federation was held on Feb. 12th at the Elizabeth Garrett Anderson Hospital, Miss M. CHADBURN, the President, being in the chair.

Dr. HELEN CHAMBERS read a paper on

The Progress of the Cancer Problem.

Dr. Chambers said she spoke with the object of arousing in the members of the Federation a sense of the importance of cancer research, and of the vast fields that yet remain to be conquered. It was her hope and belief that the Medical Women's Federation might, as a corporate body with a large available amount of clinical material, institute some scheme of research under which individual members' work might be directed, correlated, and unified, so as to yield more valuable results than might accrue from solitary effort. She spoke of research up to the present as falling under two main headings—namely, inquiry into causation (and prevention) and into treatment. With regard to the advance of knowledge in the last ten years or so, under the first heading we had undoubtedly come to recognise the important part played by chronic irritation, even though this was due to such dissimilar things as arsenic, petroleum, and parasites. The common factor appeared to be repeated death of cells in a localised area, and the inference might be that a breakdown product of such cells acted as a growth stimulant. Dr. Chambers dealt as examples with cancer of the mouth and pharynx in men and cancer of the cervix in women. She put forward also some suggestions as to the part played by skin parasites as irritants in cancer of the breast and Paget's disease of the nipple.

Under the heading of treatment, operations and irradiation by X rays and radium were discussed, and the possibility of the production of an antigen-immune body reaction was touched on. Dr. Chambers's remarks on the necessity of a thorough understanding of the principles of X ray dosage, and the danger of increasing the rate of tumour growth by ill-timed and insufficient treatment were stimulating. She pointed out the difference, often forgotten, between the experimental laboratory animal and the human patient, and from this point of view regarded immunisation of the cancer patient as still only in the realms of speculation. She insisted, however, on the importance of Coley's work, in spite of its empirical nature, and held out some hope of greater biochemical knowledge in the future.

Discussion.

Dr. EVA WHITE mentioned a paper by R. Knox, in which it was suggested that at only one period of its life was the malignant cell susceptible to the action of X rays. She wondered whether this, if true, would affect treatment. She also suggested vaginal ionisation as a prophylactic against cancer of the cervix.

Dr. LOUISA MARTINDALE said she had noticed that in cases where she had used X rays to produce atrophy of the ovaries, if an insufficient dose was used at

first, the subsequent effective dose had to be much larger than usual. She spoke briefly on the Erlangen treatment of inoperable cases.

It was proposed by Lady BRISCOE, and seconded by Dr. EVA WHITE, that a committee should be formed to draw up a plan of campaign with regard to the proposed part to be played by the Medical Women's Federation in cancer research, and Dr. Chambers, Miss Chadburn, Dr. Martindale, Lady Briscoe, and Lady Barrett were proposed and elected.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

THE annual meeting was held at Manchester on Jan. 18th, when Prof. A. DONALD (Manchester) was elected President for the ensuing year.

Exhibition of Cases and Specimens.

Dr. LEITH MURRAY (Liverpool) showed a para-vaginal lipoma weighing 17 oz. removed from a woman aged 25. On a mistaken diagnosis of "cold abscess" she had been treated on a spinal splint in a union infirmary for ten months, eventually being discharged as "improved." During this time a labour had been induced at 32 weeks in view of the obstruction caused by the "abscess." Soon after her discharge a swelling appeared in the inner side of the right buttock near the anus. This was the lower pole of an elongated, soft swelling which extended as high as the finger could reach and encroached on the vagina. The hip, spine, and sacro-iliac joints were all found normal and pelvic lipoma diagnosed. The specimen was easily removed in one mass through a 2½-inch incision over the swelling in the buttock, and proved to be a typical true lipoma, hour-glass in shape; the upper lobe, 3 in. long, was flattened, the isthmus, 1 in. by ¾ in., had been behind the pubic arch, and the lower lobe, 3½ in. long, was rounded.

Prof. BLAIR BELL (Liverpool) showed two specimens: (1) Sarcoma of the uterus removed from a single woman aged 61; the menopause had occurred at 50. For seven months there had been slight irregular bleeding from the uterus, which was enlarged; for the last month the bleeding had been almost constant and there had been a little pain. Pieces removed at an exploratory curettement on April 15th, 1923, showed the growth to be a spindle-celled sarcoma; panhysterectomy with removal of both appendages and the vermiform appendix on April 28th, 1923. (2) Cystic sarcoma of the left ovary. This occurred in a II.-para aged 55, ten years after the menopause. Slight abdominal pain had been present for six months. On Dec. 4th, 1923, there was dysuria followed by the sudden onset of severe abdominal pain. The attacks of pain varied in severity, gradually becoming more severe and causing vomiting. On examination there was slight abdominal distension; a hard mass, apparently rising out of the pelvis, was palpable in the left iliac fossa; there was a large cystic swelling in the pouch of Douglas pushing the uterus forward. On Dec. 17th panhysterectomy with removal of both appendages and appendicectomy; the solid portion of the ovary had to be separated from its adhesions to the brim of the pelvis and left iliac fossa. Section showed the solid portion to be a mixed celled sarcoma.

Dr. LEITH MURRAY and Prof. ERNEST GLYNN (Liverpool) showed a rare specimen of diffuse fibromyomatous overgrowth of the uterus. The patient, a woman aged 31, menstruated regularly since marriage a year and a half before; but she had experienced an abdominal swelling and pain "for some months." Complete hysterectomy was performed. The body of the enlarged uterus measured 6 in. long, 5½ in. broad, and 6 in. antero-posteriorly. It was uniformly studded with nodules of fibromyomatous overgrowth which formed irregular bosses under the peritoneum. The nodules were whorled and not encapsulated. The cervix was normal. The uterine cavity was considerably enlarged but the mucosa normal. Microscopical sections of seven pieces of the uterus showed an ordinary fibromyomata and no trace of adenomatous tissue. There were, however, several small groups of young and proliferating blood-vessels like those in a capillary nævus. The specimen resembled almost exactly one figured by Cullen and described as a "general myomatous tendency" of the uterus. It was suggested, however, by the exhibitors that the term "fibromyomatosis" was more in keeping with pathological usage. The ending osis was frequently employed to describe diffuse proliferation of a neoplastic type in various connective tissues—e.g., lipomatosis, fibromatosis, neurofibromatosis, myelomatosis. The pathology of the tumour was unexplained, but it was probably in some way associated with the vascular proliferation.

Dr. D. DOUGAL (Manchester) described a case of ovarian dermoid ruptured during labour and expelled per rectum a month after delivery. The patient was a primigravida, aged 28, medium pelvic contraction. She was admitted 48 hours after the onset of labour and after forceps failure at home. Easy extraction after perforation; the prolapse of anterior rectal wall noted at the time was ascribed to the previous forcible attempts at delivery. On the fourth day pyrexia, abdominal pain, distension, and vomiting; condition critical, temperature reaching 104° F.; after a fortnight a piece of bone was felt through an opening in the anterior rectal wall; a fortnight later a necrotic piece of the tumour including the plate of bone and dermoid process was passed per rectum. She was discharged two months after the labour and is now in good health.—Prof. H. BRIGGS suggested that the tumour might be a para-rectal and not an ovarian dermoid, and Dr. DOUGAL agreed.

Prof. GLYNN, recently assisted by Dr. Morris Cohen, summarised his observations on

Forty Autopsies upon Pulmonary or Cardiac Embolism

and upon primary pulmonary thrombosis. Almost invariably the lungs had been hardened and dissected, the various thrombi in them drawn and then examined microscopically. The main conclusions were: 1. Death usually occurs in either embolism or thrombosis in from 10 to 20 minutes. The development of primary thrombosis was often suggested by a slight rise in pulse-rate without a corresponding rise in temperature. 2. Primary pulmonary thrombosis was much more frequent; death occurs in post-operative cases about the tenth day. In 35 consecutive post mortems, 28 being on post-operative cases, 4 were due to embolism, 30 to primary pulmonary thrombosis, and 1 doubtful. In another case, primary thrombosis and embolism were combined.

The main evidence for primary thrombosis was: 1. The presence of proved ante-mortem thrombi, usually in both lungs and in all lobes, which could not possibly have developed in the few minutes elapsing between the acute onset and death. 2. The presence of age changes in the pulmonary thrombi, demonstrated by (*a*) hæmolysis; the blood pigment was deposited not only in the thrombi but often in the walls of the pulmonary arteries surrounding them, and even in the bronchial cartilages; and (*b*) commencing organisation of some thrombi which occurred in about a third of the cases.

The main causes of primary thrombosis were: 1. Mild sepsis, demonstrated by the frequent very slight pyrexia, and by the frequent occurrence of a non-hæmolytic streptococcus in the thrombi. 2. Pulmonary stasis, for the patients were invariably bedridden. The danger of the latter could be greatly diminished by encouraging patients to practise movements and deep breathing as soon as possible after operation. At the Liverpool Royal Infirmary from 1905 to 1915 there were 9 autopsies upon primary pulmonary thrombosis (post-operative) from the gynæcological ward, and 7 surgical (post-operative) and 3 medical from the rest of the hospital; from 1916–23 there were 2 (post-operative) from the

gynæcological ward, 6 surgical (post-operative), and 3 medical from the rest of the hospital. The diminution in the number of gynæcological cases coincided with the introduction by Prof. Blair Bell of systematic deep breathing and active arm exercise, practised every morning from the third or fourth day after the major operation. No such exercises were practised in the rest of the hospital.

CARDIFF MEDICAL SOCIETY.

A MEETING of this Society was held on Feb. 12th, DR. R. CAMERON being in the chair.

Dr. E. COLSTON WILLIAMS read a paper on

The Relations of the Private Practitioner with the Public Health Services.

He contrasted three points of view: that of the general practitioner, who is engaged mainly in curative medicine and who views his work from an individualistic standpoint; the local authority that is required to perform duties in providing treatment with due regard to economy and efficiency; and the view of the medical officer of health, whose endeavour is to organise treatment services within the limits of expenditure allowed, and who must take a general view of the problem. In tracing the rapid change from the environmental standpoint of public health to the new preventive view, which deals with the individual from birth through infancy and childhood into adult life, he pointed out that a certain broadness of outlook and social interest was necessary in all those members of the profession who were in any way associated with modern preventive medicine, and now that there was growing unity throughout the profession, that still closer relations were possible between the practitioner and the organisation of preventive services in all forms. The cordial coöperation of the general practitioner in the tasks of prevention was essential for success. The ante-natal clinic, the school clinic, and the venereal disease clinic were unable to deal with more than a small fraction of the problems for which they were created, and competent private practice must bridge the gaps. If the Insurance Act was to attain its fullest usefulness, it must be by allowing the practitioner to work under such conditions as would enable him to give his best service, fully assisted by all possible scientific aids to diagnosis and treatment. Other points of importance dealt with were medical assistance rendered under the terms of the new Midwives Act, responsibility in the administration of isolation hospitals, the relation of the practitioner to the tuberculosis service, and what might be the desirable lines of evolution of the Public Health Laboratory. Many difficult problems in relation to voluntary hospitals were arising which the profession seemed somewhat loth to tackle—for example, what was to be the status and remuneration of staffs, whether work and payment for work for public authorities should be accepted, and, if so, what terms would be satisfactory to the profession?

Mr. J. BERRY HAYCRAFT gave a demonstration on

A Simple Method of Performing Blood Transfusion.

He pointed out the various indications, and emphasised the importance of employing a method that could be simply and rapidly performed, owing to the frequent urgency of these cases, and the fact that they had only occasionally to be dealt with. The operation was divided into two stages: (1) The selection of the donor. Two methods of performing the agglutination tests were described. If type II. and III. sera are not available, the direct action of the recipient's serum on the cells of the donor is tested. (2) The transfusion is performed using a 3·8 per cent. solution of sodium citrate as an anticoagulant. The donor's blood is received into a graduated jug containing the solution, and the transfusion performed with an ordinary saline infusion apparatus, the veins being cut down upon and glass cannulæ employed. The citrate solution was in two graduated flasks contained in drums which were sterilised, so that they could be kept indefinitely, and the whole apparatus was made in convenient portable form by Messrs. Staniforth of Cardiff. It was pointed out by this means transfusion could be employed anywhere, and it was not necessary to send patients long distances to a large hospital. In injuries to the limbs transfusion should be employed prior to operation, whereas in abdominal hæmorrhage laparotomy should be performed first, and the transfusion commenced immediately the hæmorrhage is controlled.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this Society on Feb. 26th, with Sir DAVID WALLACE, President, in the chair, Mr. DAVID LEES opened a discussion on

CONGENITAL SYPHILIS.

He began by sketching the historical facts regarding the hereditary transmission of syphilis, and went on to discuss the method of transmission of infection, concluding from his own experience that maternal syphilis was most commonly the cause, infection being by the placental route. With regard to Colles's law, he said that the blood of over 90 per cent. of the mothers exhibiting the apparent paradoxical immunity showed a positive Wassermann. Maternal syphilis had a more profound effect on heredity than paternal, and the virulence was more marked still when both parents were affected. The more recently infected the mother before conception the more virulent was the course of the disease in the child; the older the infection the less marked was the effect of parental transmission. Up to the eighth month of pregnancy the virus might be transmitted to the child in utero. Subsequent to this the infection was more probably acquired during its passage through the maternal passages at birth. The virulence of transmission lessened with time, and in the fifth and sixth year of untreated syphilis the infection might no longer be transmitted. Cases were quoted by Fournier, however, of transmission up to the twentieth year. Treatment had a profound effect in lessening the virulence of heredity, and active specific treatment of the mother during pregnancy could almost eliminate it.

Rietschel considered that the modified course of the disease in the mother was due to the uterus being an unsuitable medium for the spirochæte. This theory was supported by the experimental work of Neisser. More recently Routh had attributed the attenuation of the virus to spirillolysis set up by the chorionic ferments. While the spirochæte was subject to the influence of the ferments the syphilis was quiescent, and subsequent to pregnancy redeveloped and resumed its former activity. Toxic symptoms during pregnancy were more marked when the infection was acquired at or near conception. Congenital syphilis was generalised from the beginning, and consequently had a more profound effect on general nutrition, and so on mental and physical development.

Diagnosis.

In diagnosis, Mr. Lees said, careful inquiry into the possibility of acquired syphilis in both parents should be made, and as to a history of miscarriages on the part of the mother. The early history of other children and examination of them was often helpful. Spirochætes could be demonstrated in the serum expressed from the margin of active skin lesions. In spite of this, contagion from congenital syphilitic children was rare. The Wassermann test was positive in well over 90 per cent. of cases with active lesions, being practically 100 per cent. in cases showing gross lesions at birth. The provocative Wassermann was often useful in doubtful cases. Mr. Lees referred at some length to the luetic test, considering that it should only be employed as

supplementary to the Wassermann test. The so-called therapeutic tests should only be employed when more accurate methods had failed. Many non-specific skin lesions were benefited by arsenic and mercury.

Clinical diagnosis was discussed at length. Both in early and late congenital syphilis the lymph glands tended to be involved and super-added tuberculous infection was not uncommon. Iritis occurred early, and with it there was often an accompanying cyclitis. Interstitial keratitis, rare in infancy, was common from the eighth to the fifteenth year. Mr. Lees referred to the wide variations of the clinical picture, and said that in no pathological condition was it so important to avoid looking at the body in compartments. He referred to the predisposition to intercurrent lesions, and to the simulation of other conditions by congenital syphilis, stressing the importance of considering it as a possible ætiological factor in apparently intercurrent disease. He quoted Kolmer's maxim, "Always suspect syphilis, but be slow to diagnose it."

Prophylaxis and Treatment.

Discussing prophylaxis, Mr. Lees said that the first principle was the intensive treatment of all cases of acquired syphilis until a clean bill of health had been given to both parties. In the married prevention of conception must be insisted on until all clinical evidence of disease had disappeared. If conception had already taken place intensive treatment of both parents, and especially of the wife, was essential. It should be instigated early and continued to a week before term. Arsenic was the most potent drug, and was usually well tolerated by the pregnant woman. Any of the "914" preparations might be given. Joint exhibition of arsenic and mercury in pregnancy might produce excessive strain on the already burdened kidney. The drugs should, therefore, be given separately. Neo-natal treatment in all cases should be begun at the earliest possible moment within a few hours of birth. Mr. Lees recommended "dribble" doses of the arsenical drug daily or on alternate days as the safest and most satisfactory method. The intravenous route was preferable for rapidity of effect in the first or second dose, but subsequently intramuscular sulpharsenol was most satisfactory. When the gross lesions had disappeared mercurial therapy was commenced in conjunction with sulpharsenol. Bismuth had recently been used in congenital syphilis with good effects. Increase of body-weight was the most useful criterion of success after the gross lesions had disappeared. The minimum period of treatment was two years, and it could not be any less in any case of congenital syphilis, no matter how slight. In many others much longer periods were essential, according to the reaction of the patient to the therapy exhibited.

Discussion.

The PRESIDENT drew attention to the importance of clinical symptoms in diagnosis.

Dr. LEONARD FINDLAY, of Glasgow, who was present as the guest of Dr. John Thomson, gave an interesting account of his experience of congenital syphilis at the Ruchill Fever Hospital. He considered that the incidence had been grossly exaggerated. He believed that Fildes's figure of 0·5 per cent. of children in hospital classes was probably about correct. He showed several slides, giving statistics supporting his views. He believed strongly in the Wassermann test.

Prof. B. P. WATSON discussed the Wassermann test in new-born children, and pointed out how the presence of Wharton's jelly in cord blood rendered fallacious the results of the test.

Dr. J. V. PATERSON said that he now scarcely considered it necessary to do the Wassermann test, which he regarded as most reliable, in cases of interstitial keratitis. He had been very chary of salvarsan in the early days, but now used it always with benefit.

Dr. J. S. FRASER said that in his experience congenital syphilitic ear disease was not benefited by arsenical therapy.

Prof. G. M. ROBERTSON said that he had been struck lately by a feature of both interstitial keratitis and general paralysis of the insane—namely, the delay in their appearance in the course of the disease—and suggested anaphylaxis as a possible explanation. He asked whether there was not a natural tendency to cure in untreated syphilis.

Dr. J. H. GIBBS showed some lantern-slides illustrating Moon's molars with the typical doming of the cusp.

Mr. SCOT SKIRVING asked if there had ever been discovered any difference, culturally or otherwise, between the spirochæte of congenital and acquired syphilis.

Mr. C. W. MACGILLIVRAY spoke of cases in the pre-Wassermann days which had apparently recovered with purely symptomatic treatment.

Colonel GLEN LISTON spoke of the sigma test, and said that in a large series of cases he had found 29 per cent. negative Wassermanns positive to that test.

Mr. LEES replied to the various points.

Dr. R. CRANSTON LOW then showed a case of urticaria pigmentosa of 30 years' duration, and Mr. W. J. STUART one of facio-hypoglossal anastomosis.

MANCHESTER MEDICAL SOCIETY.

A MEETING of this Society was held on Feb. 6th, Dr. E. M. BROCKBANK, the President, being in the chair.

Dr. G. J. LANGLEY read a paper on the

Treatment of Auricular Fibrillation.

He first dealt with the necessity for an appreciation of the functional pathology of the condition. With regard to the different methods of treatment, the aim of the digitalis treatment was to produce heart-block, whilst the aim of quinidine treatment was to terminate auricular circus movement. Dr. Langley dealt with the ordinary method of digitalis administration and Eggleston's massive digitalis method. An analysis of the results of 50 cases treated by digitalis given by the ordinary method was discussed. With regard to the literature of quinidine treatment 1006 cases had been already collected, and now 441 further cases were added, with the results and dosage. Twenty-three cases that had been treated and the results obtained were described.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the Committee 19 cases were considered and £226 voted to 17 applicants. The following is a summary of the new cases relieved:—

L.R.C.P. & S. Edin., aged 61, who practised in Bristol. Applicant broke down in health four years ago, necessitating several severe surgical operations from time to time. He can only manage part-time assistantships or light locum work. Voted £26 in 12 monthly instalments.

Daughter, aged 53, of F.R.C.S. Edin. who practised in Birmingham. Applicant is one of 12 children, her father died when she was 18, and her mother six years ago. The mother's income was an annuity. Applicant has been crippled with neuritis and unable to work for three years. Now slowly improving, but the light work she is able to manage is not sufficiently remunerative to live upon. Her income last year amounted to £45. Voted £12 in 12 monthly instalments.

Widow, aged 37, of L.R.C.P. Edin. who practised in Wales and Canada and died at sea in November, 1923, on the return journey from Canada. The practice was the only source of income, and applicant is left with four children, ages 6 to 16 years, and the estate is not expected to realise more than £100 per annum. Applicant asks for educational assistance. Committee made a small grant to render applicant eligible for the Guild to investigate the case.

Three children, aged 9 to 14 years, of M.B. Aberd. who practised in Leeds and died in 1915. The mother married again, and has now lost her second husband, who was a metallurgist, before he was able to make any provision for her or his step-children. The mother asks the Fund to help with education. The children have £5 per annum each from the grandfather's estate. The Committee made a small grant so that the Guild will be able to investigate this case.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, K.B.E., M.S. at 11, Chandos-street, Cavendish-square, London, W 1.

Reviews and Notices of Books.

PHYSIOTHERAPY TECHNIC.

A Manual of Applied Physics. By C. M. SAMPSON, M.D., formerly of the Physiotherapy Service, Walter Reed U.S. Army General Hospital, Washington, D.C. London: Henry Kimpton. 1923. Pp. 443. 30*s*.

THIS book has been written in order to indicate the therapeutic value of various physical forms of treatment—viz., high frequency and diathermy, static electricity, actinotherapy, X rays (for non-malignant conditions); galvanic, faradic, and sinusoidal currents; massage and hydrotherapy. The largest sections of the book deal with diathermy, ultra-violet radiation, static electricity, and X rays. Shorter sections deal with the other physiotherapeutic agents, and there are special chapters devoted to the treatment by physical means of arthritis, locomotor ataxy, genito-urinary diseases, and hay fever. The book is dedicated to the "therapeutic peptimist," whom the author describes as the optimist who envisions much better things than are even now possible, and has the determination, courage, ability, and energy to go out and make his visions come true. The "peptimist" is the antithesis of the therapeutic nihilist.

The author has evidently had considerable experience of the subject on which he writes. He says that practically each step in every technique given in the book is based upon laboratory and clinical research, and that the results have been checked by others, who were by no means prejudiced in favour of the methods. He insists on the necessity of correct technique, and frequently emphasises his descriptions with instances in which the failure to pay attention to detail has resulted in the depreciation of the value of physiotherapy. For the application of diathermy the author describes a sedative and a stimulating method. In the latter only the gentlest degree of heat is applied, and the method is employed for the stimulation of the growth of sluggish tissues as, for example, in the treatment of ununited fractures. He speaks highly of diathermy for the treatment of paralysis due to nerve injury, and says that surgeons have often called attention to the fact that adhesions are much less firm and more easily removed in cases which had been subjected, before operation, to courses of diathermy.

The book is amusing to read in many parts. When speaking of the inability of the shocks from the static machine to do harm, the author describes how he discovered an arthritic mouse among a colony, and proceeded to give it the regular static treatment for arthritis. Its improvement was manifest from the time the first spark hit it, and during the 12 days of subsequent observation it covered more mileage, ate more food, and generally was more lively than any of the untreated controls. Certain statements are open to criticism. It is difficult to see how a heavy condenser discharge (preceded by heat) can "break up and squeeze out into the dilated blood and lymph spaces the semi-organised and organising inflammatory exudate." The graphic record of the sinusoidal current is incorrectly figured and described.

The book contains much useful information, and the results described should stimulate other workers to try the author's methods. A form of treatment for hay fever is said by the author to "come near being specific. It consists first in the application of high frequency; second, in the application of ultra-violet rays to the anterior nares; third, in the application of the same rays to the posterior nares and naso-pharynx." The volume is well prepared and fully illustrated. There are some useful diagrams, but many of the illustrations are pictures of patients receiving treatment, and these add to the bulk of the book without contributing much to its value.

DIABETES.

New Views on Diabetes Mellitus. By P. J. CAMMIDGE, M.D. Lond., and H. A. H. HOWARD, B.Sc. Lond. Oxford Medical Publications. London: Humphrey Milford. 1923. With 85 figures. Pp. 611. 21*s*.

THE authors here set out in book form much of the work which they have published during the last few years in current medical journals. The opening chapter deals with normal carbohydrate metabolism and the shape of the blood-sugar curve after a dose of sugar or a mixed meal, the maximum point being placed after the third hour unless the patient has a hyperchlorhydria. This experience differs from that of many observers who find the maximum point at the end of half an hour or very little later. The authors have attempted to show that the acid secreted in the gastric juice affects the curve by producing changes in the acid-base metabolism of the blood and liver; these experiments are not convincing.

The experiments which deal with the source of the amylolytic ferment in the blood stand on a different plane; the hypothesis seems to be proved that this ferment is formed in the liver and not in the pancreas though the latter organ controls its output. The effects of prolonged boiling on oatmeal and of long toasting of bread have been investigated, and the conversion of a certain proportion of the starch into dextrin is demonstrated. The authors are able to confirm Pavy's observation that dextrin is used in a different way from starch. The experiments on the amylolytic ferment and the increase in the amount of sugar in the blood after hydrolysis (called the difference value) have been used by the authors to sort out the different types of diabetes. One-third of the patients show changes which resemble those which occurred in the dog whose pancreas had been partly removed; one-third show changes which resemble those seen in a rabbit whose liver has been damaged; while the remaining third show changes which are not characteristic of either group and may be due to a combination of the two causes. This evidence is opposed to the views of Allen and others who believe that the pancreas is primarily involved.

In the chapter on the principles of treatment 34 pages are devoted to the treatment with insulin. From internal evidence it seems that this represents only the early observations of the authors, and no reference is made to work published after May, 1923. Experiments made on two severe cases of diabetes are described and the results compared with Mackenzie Wallis's unstandardised extract. In one case only did this extract cause a definite fall in the blood-sugar, while insulin always caused a fall, unless much carbohydrate was given, and a corresponding improvement in the clinical condition. In one case insulin was discontinued, as no further improvement seemed to be occurring, although great improvement had taken place, and the boy died some two months later. The authors express the view that to give two injections a day to a boy of 14 for the rest of his life is a somewhat appalling prospect. They hesitate to accept the view that insulin stands in the same relation to diabetes mellitus as thyroid extract does to myxœdema. "for the pancreatic factor is not present or dominant in every case of diabetes as a deficiency of the thyroid is in myxœdema." The statement that in some respects the action of insulin is more akin to the relief of pain by a dose of morphia, is remarkable in the light of the work of other observers in Canada, the United States, and this country. With regard to the principles of dietetic treatment the authors also stand in opposition to modern views, since they do not hesitate to give much larger amounts of carbohydrate than are usually given and their fat ration is very low. If the patient can be kept sugar-free so much the better, but if not they think that it is better for him to pass sugar than to have the carbohydrate ration reduced too much. The authors' work on the effect of atropine and morphia on the shape of the

blood-sugar curve is interesting; they think that some patients can be helped in this way.

The book represents an enormous amount of laborious work. It contains many diagrams which make the text more easy to understand and a good list of references at the end of each chapter will be useful to other workers. The fact that some of the views expressed are at variance with those of other workers justifies their collection within the covers of a single volume.

The Treatment of Diabetes Mellitus. With Observations Based upon 3000 Cases. Third edition. By ELLIOTT P. JOSLIN, M.D. Harvard, Clinical Professor of Medicine, Harvard Medical School; Consulting Physician, Boston City Hospital. London: Henry Kimpton. 1924. Pp. 784. 36*s*.

IN the third edition of his well-known book Prof. Joslin has added a new section on insulin, his attitude towards which is contained in the words: "Insulin does not cure diabetes, but it is a priceless gift to the severe diabetic provided that he be intelligent and faithful." The section opens with a history of the discovery of insulin by Banting and Best, and of the work of numerous others who showed that extracts of pancreas had an effect on the metabolism of sugar, or who were at all events very near the discovery. This makes very interesting reading. The next 60 pages give the results of insulin treatment for one complete year, starting from August, 1922. These have been uniformly good apart from some definite cause, usually the fault of the patient or the intercurrence of other disease. The treatment is very carefully explained; minute details are given as to the best way of keeping the syringe and performing the injection.

"It is a mercy," writes Prof. Joslin, "that at present insulin becomes inert when given by mouth and that its present use is restricted by syringe," explaining this strong statement on the ground that insulin is a most potent remedy from which untold damage might occur if it was used indiscriminately. In one respect the author has changed his standpoint, since he now says that it is important to keep not only the urine sugar-free but also to keep the blood-sugar normal. He thinks that patients should not gain weight unduly. During this first year 20 died out of a total of 293 insulin-treated patients. In only five is the cause of death given as coma and one of these was complicated by tuberculosis; some of the others were admitted in the late stages of coma; the remaining 15 all died of intercurrent affections.

No mention is made of any work on insulin done in England, although several papers were published before August of last year and this omission is apparent throughout the whole book. English workers on this showing would seem to have contributed nothing to the advance of our knowledge. The remainder of the book follows the lines of previous editions; the pages on incidence and ætiology are full of interesting information. A statement by Sherrill is quoted with approval, "that functional deterioration in diabetes can be traced to definite causes, particularly infectious and dietary excesses, that downward progress clinically depends upon the different susceptibilities of different patients to these injurious influences, and that by strict avoidance of such influences downward progress can be largely or wholly avoided." The section on pathology is hardly worthy of the rest of the book. Renal glycosuria is dismissed in two pages. Dietetic treatment is adequately dealt with in 140 pages, considerable space being given to the desirable relationship between protein, fat, and sugar. A section entitled, "What every patient should know," is very clear and well devised; 28 pages devoted to the composition of foods will be very useful to the physician who is called to answer the sensible questions of intelligent patients.

Prof. Joslin's book is packed with interesting information about diabetes and is well written. It is so readable that the author may be forgiven for being at times too discursive.

THE OFFICIAL HISTORY OF AUSTRALIA IN THE WAR, 1914–1918.

Vol. XII. Photographic Record of the War. Sydney: Angus and Robertson. 1923. Pp. x.-753 and Index. 28*s*.

THE photographs reproduced in this volume were taken by the Australian official photographers, Capts. G. H. Wilkins, *M.C.*, and J. F. Hurley; Lieuts. H. F. Baldwin and J. P. Campbell and others, while the preface and annotations are supplied by Mr. C. E. W. Bean and Mr. H. S. Gullett. It aims at supplying a complete authentic pictorial narrative of the effort of Australia in the war, and although the begetters of the work do not say whether their aim has been fulfilled or no, we ourselves may affirm that the book is of extraordinary interest. We have pictures of scenes in Australia on the outbreak of war, of the starting of the troops, of the Royal Australian Navy and the Mercantile Marine, and of the raising of the Australian Imperial Force. Plates 15–19 give views of the *Sydney—Emden* fight, the last one being a picture of the sorely-battered *Emden* after surrender. In the rest of the book we have pictures from all other fronts. An inspection of Plates 219–231 or 267 and 268 should make clear the anxiety of France to obtain reparations. Plates 219 and 220 show a clean comfortable little village street, while Plate 221 shows a series of rubble heaps, but it is the same place. Many photographs were taken in the Palestine operations, all of which are of much interest, one very notable one being 627, the Jordan Valley from the air. Altogether the volume is in every way a worthy companion for its narrative fellows.

MIND AND HEREDITY.

By VERNON L. KELLOGG. Princeton: University Press. 1923. Pp. 108. 7*s*.

"MIND" is possessed by all animals—possibly plants too. The instinctive and most elaborate reactions of insects show no obvious signs of being subject to what we should call intelligence, but some of the lower animals—rabbits, for example—give unmistakable evidence of having, in a small degree, the capacity for thought and choice which some people have supposed to be man's prerogative. The instinct mind is wholly inherited and owes nothing to environment. A great deal, at any rate, of the human mind is inherited too, and it is certainly not in mental capacity that all men were created equal. Environment has its share in education, but educational systems overlook too much the predominant differences in natural intelligence. Such in outline is the substance of these pleasant lectures, which will stimulate the reader to think rather than tell him what to believe.

INTERNATIONAL CLINICS.

A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Vol. III. Thirty-third Series. London and Philadelphia: J. B. Lippincott Co. 1923. Pp. 312. 42*s*.

WE take occasion to remind readers of this serial potpourri of medicine and surgery, edited by Dr. Henry W. Cattell, with the collaboration of numerous specialists. Sections of this publication are devoted to (1) diagnosis and treatment, (2) morbid psychology, (3) pædiatrics, (4) medicine, (5) surgery, and (6) the medico-legal aspect of death by hanging, and the present series contains altogether two dozen papers. The titles of some of these show what a wide field has been covered. The first paper is on the Treatment of Allergic Diseases, by W. Storm van Leeuwen, of Leiden; some way down the list there is a paper on What Can and What Can Not be Done to Prevent Falling of the Hair; in another paper arguments are adduced to show that cancer is never a purely local disease; another deals with thyroid therapeutics. In the pædiatric section the interesting problem of *Bacillus coli* infection in childhood is dealt with. Volumes of this kind are hardly suitable for medical students,

but for the reader who is more free to choose his literature such a work has many attractions. The editor has picked his staff with an eye not only to their knowledge, but also to their capacity for passing it on to others in a digestible form. The pictorial style when handled skilfully may be a valuable aid to memory. In his paper on Thyroid Therapeutics Dr. William N. Berkeley writes: "When thyroid is properly given, I have seen half a dozen teeth sprout in a backward baby's mouth in three weeks' time, like tulip bulbs in warm spring weather." Touches such as this brighten a medical work.

COMMON SYMPTOMS OF AN UNSOUND MIND.

A Guide for Genetal Practitioners. By G. RUTHERFORD JEFFREY, M.D. Glasg., F.R.C.P. Edin., Medical Superintendent, Bootham Park Mental Hospital, York. With a foreword by Sir JAMES CRICHTON-BROWNE, M.D. Edin., F.R.S. London: H. K. Lewis and Co., Ltd. 1923. 7*s.* 6*d.*

Dr. Jeffrey has performed a considerable service to the profession in publishing his short manual on the common symptoms of mental disorder. He deals exclusively with the external features of mental disease; each common symptom is considered in the light of its possible significance. A chapter is devoted to each of five main groups, delusions, disorders of perception, disorders of conduct, excitement and depression, and confusion. The discussion of their significance in relation to the other factors of a given case is illuminating and readable, and is illustrated by vivid accounts of many actual cases. Among these the reader will be puzzled to find no less than three ladies who were 61 years of age, two of them with cerebral tumours, described on adjoining pages. Dr. Jeffrey has strong views on the question of legal responsibility, and a chapter is devoted to this subject. The only missing feature is a discussion of the indications for certification, and of measures necessary and feasible when certification is delayed or impracticable. Such a chapter would add to the usefulness of a book which will in any case prove of great value to the general practitioner.

PRACTICAL ANALYSIS OF BLOOD.

Second edition. By VICTOR CARYL MEYERS, M.A., Ph.D., Professor and Director of the Department of Biochemistry, New York Post-Graduate Medical School and Hospital. London: Henry Kimpton. 1924. Pp. 232. 25*s.*

IT is difficult nowadays to realise that the first clinical estimation of any blood constituent was introduced by Bang as recently as 1913, and that the science of clinical blood analysis really started at this date. Previous to this period the methods in use required such enormous quantities of blood that they were quite impossible clinically.

The volume under consideration is already well known as one of the standard works on the subject, and is used extensively in America. Unfortunately English clinicians are only just beginning to realise the importance of blood analysis, hence the demand for such a work is not so great in this country. The book is extremely well arranged, and the illustrations are numerous and good. A very wide choice of methods is given, and the author has modestly refrained from emphasising his own particular techniques. There are, however, several points to be noted. First, we would ask, Why do writers copy mistakes and misprints (and they are very great) when describing Folin's and Wu's methods? The perpetuation of these errors leads workers who try the methods to condemn them, whilst in reality the Folin system is undoubtedly excellent. A second point is that the reader does not obtain a clear appreciation of the clinical value of the results of the analyses he has been told to perform. The information is more of a technical than a medical type, with the result that the vast practical value of the determinations is lost sight of. A pleasing thing is the chapter on blood uric acid, and most especially, the detailed description of Sir Alfred Garrod's monumental work on the subject nearly 75 years ago. It is, indeed, a pleasure to find a modern text-book which brings such names to the fore as A. B. Garrod and Carl Schmidt, the famous professor of physiological chemistry at Dorpat.

On the whole, the book is very good, and it is to be hoped that it will have a large circulation in England, and that workers over here will take to heart the doctrines that the author so eloquently pleads.

JOURNALS.

BRITISH JOURNAL OF SURGERY.—The January number contains the eleventh of Sir D'Arcy Power's series of Eponyms, Bell's Palsy.—John Fraser's contribution to the discussion on Operation Shock at the sixth meeting of the International Society of Surgery is reproduced in full. He reviews the theories held up to the end of 1915, and discusses the result of war researches upon this subject, and finally comes to some interesting conclusions. There follows an account of the discussion on the subject.—J. J. Levin and A. Porter report four cases of intestinal obstruction due to an accumulation of large numbers of *Ascaris lumbricoides*.—J. Fraser and N. M. Dott record their experimental results in a new method of performing aseptic intestinal anastomosis. The detail of technique, which is new, is their method of dividing the occluding ligatures on the cut ends of the gut by a special instrument which they call their ligature guillotine.—Sir Arthur Keith, in his eleventh Mitchell Banks memorial lecture, deals with the origin and nature of hernia. He describes the factors which may produce sacs of developmental origin, and also the mechanism whereby sacs may be acquired in later life.—H. J. Waring and H. E. Griffiths, in reporting 15 cases of acute pancreatitis, analyse the symptomatology, diagnosis, pathology, and treatment of this condition.—R. Hamilton Russell describes his special method of obtaining extension in cases of fractured femur. His main contention is that some flexion of the knee is essential to correct alignment, and he maintains that his method gives not only good results but much comfort to the patient.—R. J. Gladstone and C. P. G. Wakeley analyse the relative frequency of the various positions of the vermiform appendix, judged from 3000 examinations.—P. Sargent brings forward some points in the surgery of the pituitary gland. He reports his cases and describes his operative methods, which are based on Frazier's original operation.—Naughton Dunn and F. W. Stuart record two cases in which the tensor fasciæ femoris muscle has been used as a transplant in cases of paralysis of the quadriceps muscle.—H. Platt and W. R. Bristow publish an exhaustive paper on the remote results of operations for injuries of the peripheral nerves. They conclude that end-to-end suture alone holds out good promise, and even with this method at least 20 per cent. failures are to be expected. Certain nerves are dealt with separately and their percentage recovery given.—This paper, being a contribution to the discussion on that subject at the International Society of Surgery, is followed by a critical summary of the discussion.—D. P. D. Wilkie reports a case of paralytic ileus treated by a high and a low enterostomy. The drainage from the upper jejunal tube was so profuse as to prejudice the result from loss of body fluids. The two tubes were therefore joined up outside the abdomen, and the bowels were opened naturally. The two fistulæ closed rapidly when the tubes were removed.—An account is given of a visit to the Professor Thorkild Rovsing and the Rigshospital at Copenhagen.—The following rare or obscure cases are recorded: (1) G. Hadfield, malignant papilloma of the renal pelvis associated with calculus; (2) D. Wood and C. S. Gideon, two cases of fatal hæmatemesis after splenectomy for Banti's disease; (3) C. J. Marshall, perforation of the stomach by a needle, being one of many metallic foreign bodies present in that organ; (4) T. Twistington Higgins, subacute pancreatitis occurring in association with acute intestinal obstruction in a new-born infant.

The Conduct of Medical Practice.

A Series of Articles by Experts dealing with the Difficulties Encountered in Professional Life and How to Meet Them.

VIII.—STARTING A PANEL PRACTICE.

BY LEONARD SHOETEN SACK,
OF THE MIDDLE TEMPLE, BARRISTER-AT-LAW; JOINT AUTHOR OF "MEDICAL INSURANCE PRACTICE" *

"Men are everything; measures are comparatively nothing."

MUCH can be said either for or against any system of compulsory health insurance controlled by the State, and there is still greater scope for argument when considering the particular system which was established in this country in 1911 under the National Health Insurance Act. With the merits or demerits of that system we are not here concerned. For the purpose of our present subject it is sufficient to stress the fact that there are to-day more than 15 million people in this country who are compulsorily insured, and who, with few exceptions, seek and obtain their medical attendance and treatment only from panel medical officers.

This figure would, by itself, indicate that the treatment of insured persons is a matter which the average doctor about to start in general practice cannot afford to disregard. But the influence of national insurance extends farther. The normal family does not employ two medical men. Even in these days of revolutionary tendencies, the "family doctor" remains a very real and popular conception. There may be only one insured person in a family of four or five, yet the "panel doctor" who is chosen to look after him will almost invariably be sought when the non-insured members fall ill. Whether for good or for evil, the doctor who is starting in practice will, with rare exceptions, be virtually compelled to choose between undertaking insurance practice or being satisfied with a greatly restricted private practice. It is not surprising, therefore, that there are more than 15,000 panel doctors in the British Isles, and that this number is increasing.

Preliminary Steps.

In the administration of medical benefit under the National Insurance Acts the controlling authority does not, as in the case of most other public health services, select the doctors by whom the service is to be carried out. Every qualified medical practitioner—that is to say, every doctor whose name appears on the Medical Register—is entitled as of right to treat insured persons. Moreover, the insurance practice cannot be terminated without the consent of the doctor except for some very grave offence, and then only after a special inquiry by the Minister of Health.

The method of entering insurance practice is simple. For the purpose of administering medical benefit, public bodies, known as insurance committees, are set up for each county and for the larger county boroughs. The members of these committees represent insured persons, doctors, chemists, and the local council. One of the obvious duties of the committee is to arrange for the necessary supply of doctors, and for this purpose it keeps a list of the names and addresses of the local practitioners who have undertaken to treat insured persons. This is the "panel"—officially known as the Medical List. A doctor undertaking insurance practice must first secure that his name is included on this list. To do this it is necessary only to send to the clerk of the insurance committee (whose address can be obtained from any post office) a notice in the following form.

FORM OF APPLICATION FOR ADMISSION TO MEDICAL LIST, NATIONAL HEALTH INSURANCE.

I, A. B., residing at ....., a duly qualified medical practitioner registered in the Medical Register in that name, and having the following medical qualifications, namely, ..., desire to undertake the medical attendance and treatment of insured persons in the area of the Committee upon the terms for the time being in operation in that area, and for this purpose I hereby accept service under those terms and apply for admission to the medical list of the Committee.

The district or districts within which I undertake to visit insured patients and particulars of my surgery hours are given below:—

District.	Surgery.	Days and Hours of Attendance.

Signed .....

Date .....

On receipt of this notice by the insurance committee, the doctor's name (assuming that it does, in fact, appear on the Medical Register) must be entered on the Medical List for the district, and the doctor *ipso facto* becomes entitled to treat the insured persons who apply to him. In practice, the clerk to the committee informs the doctor that his name has been placed on the list, and also furnishes him with a supply of the many forms which appear still to be inseparable from any State-controlled service—e.g., certificates, record cards, and prescription forms.

Conditions of Service.

Concurrently with the doctor's right to treat insured persons, there necessarily arise the duties and obligations which form part of the doctor's agreement with the committee. Before 1920 the doctor signed a contract which specified many of these obligations. Now there is no written form of contract, but the contractual relationship remains. It will be observed that the notice states that the doctor desires to treat insured persons "upon the terms for the time being in operation." These terms are mainly set out in the Medical Benefit Regulations, 1924. So far as the provisions of those regulations affect his insurance practice, the doctor is bound by them—they form part of his "contract." The part of the regulations most directly affecting the doctor (Schedule I., which includes the "Terms of Service" and the Medical Certification Rules) is issued by the insurance committee as a separate document. There are also two schemes prepared by the committee, one, known as the Allocation Scheme, applies the general requirements of the regulations on such matters as the provision of emergency treatment and the limitation of panel lists: the other—the Distribution Scheme—deals chiefly with remuneration.

It should be understood that when a doctor notifies the insurance committee that he wishes to treat insured persons, he thereby accepts the terms of service set out in the regulations and in the two schemes. He should, therefore, obtain copies of these documents from the insurance committee and should inform himself of their provisions before sending in his formal notice.

Duties Required.

It does not fall within the scope of this article to deal in any detail with the various obligations of the insurance practitioner. The principal services which the doctor undertakes to give to insurance patients may, however, be summarised in general terms as follows:—

1. The provision of general practitioner treatment to all insured persons on his list (excluding treatment in respect of confinements or attendance at miscarriages, but including the administration of anæsthetics or the provision of an anæsthetist).
2. The provision of emergency treatment to any insured person whose doctor is not, at the time, available.
3. The writing of prescriptions for necessary medicines and certain appliances on a special prescription form (in some cases the doctor must himself supply the medicines or appliances, at an additional rate of payment).
4. The issue of certificates. In all, there are five certificates of incapacity, one death certificate, and one voluntary certificate.
5. The keeping of records in respect of the diseases and treatment of all his insurance patients.

* A Work of Reference to the Medical Benefit Provisions of the National Health Insurance Acts. By R. W. Harris and L. Shoeten Sack. London: The Scientific Press, Ltd. 1922. Pp. 327. Price 7*s.* 6*d.*

The doctor undertakes to visit any patient whose condition requires it, and to provide proper and sufficient surgery accommodation for those patients who are well enough to attend at the surgery.

The insured person, on his side, is bound by certain rules which, inter alia, require him to obey the instructions of his doctor, not to make unreasonable demands upon his professional services, and not to summon him during the night except in cases of serious emergency.

Payment and Goodwill.

Except in Manchester and Salford, where an attendance system prevails, payment for insurance practice is made on the capitation basis. The Court of Inquiry recently appointed by the Minister has fixed the capitation fee for 1924 at 9*s.*, and has recommended that this fee should continue until the end of 1927. It should be understood that under the capitation system of payment the Central Fund from which all payments are made is constituted by multiplying the capitation fee of 9*s.* by an estimated number of insured persons in the country. The Central Fund is then distributed among the insurance committees according to the number of insured persons calculated to be in each area by reference to the local committee's register. As the local registers do not provide a true count of the number of insured persons actually in the area at any given time, the doctor will not necessarily receive an amount exactly equivalent to the sum of the capitation fee multiplied by the number of insured persons on his list. Payment is made quarterly. Generally speaking, a doctor is not permitted to accept any fee from an insurance patient.

In addition the flat rate per head of insured persons on the doctor's list, there are certain special payments—e.g., in respect of anæsthetists' services and the treatment of temporary residents. Where a doctor is required himself to supply drugs and appliances, he receives an additional payment of 2*s.* a head, with special payment for certain expensive drugs and appliances, such as vaccines, insulin, &c. Doctors in rural areas also receive a "mileage allowance" where the patient resides more than two miles away, or where the country presents special difficulties of travel.

In considering the income to be derived from panel practice it must be remembered that, except under very special conditions, a doctor in single-handed practice is not allowed to have more than 2500 insured persons on his list. If assistants are employed he may be permitted to have an additional number, not exceeding 1500 for each assistant. Partners must not have more than an average of 2500, although any one partner may have up to 3000.

Goodwill in an insurance practice has never been officially recognised, although the principles are now largely the same as with private practice. A doctor buying a practice which includes a panel of insured persons cannot, of course, buy the right to treat all the insured persons who were on his predecessor's list, for every insured person is now able to change his doctor at any time. The regulations do, however, provide that the doctor who withdraws from the Medical List of an area may require the insurance committee to notify his insurance patients that his successor is willing to accept them on his list, and the incoming doctor receives for a limited period extra payment in respect of this undertaking to accept any of his predecessor's patients.

The Controlling Authorities.

The general relationship of the insurance doctor to the various bodies concerned in the administration of medical benefit can be indicated only briefly. The approved societies, as such, have no control. They are concerned primarily with the payment of cash benefits, and they may therefore be brought into contact with the doctor on questions of certification of incapacity; but not even on such matters have they any power directly to control the doctor's work. Indirectly, however, the societies, as representing insured persons, nominate three-fifths of the members of the insurance committee. The insurance committee is the body which deals with the practical administration of medical benefit. It is with this committee that the doctor enters into his agreement; and it is this body which will, in the first instance, investigate any complaints made by or against him. The committee also distributes the remuneration. Even this committee cannot, however, alter the doctor's terms of service without the express consent of the Minister of Health.

On all important matters the Minister of Health determines the conditions of insurance practice; and it is with him that the Insurance Acts Committee of the British Medical Association hold the consultations which, in practice, have always preceded any material alteration in the terms of service. The doctor has a right of appeal to the Minister from any disciplinary decision of the insurance committee; only the Minister can alter the rate of remuneration or inflict a pecuniary penalty. The Minister has appointed regional medical officers throughout the country. In addition to their specific duties as referees, these officers are in a position to offer general advice and guidance, and it is to the advantage of a doctor entering into insurance practice to become acquainted with the regional officer for his district.

Finally, there is in each area a panel committee which is a body directly representative of insurance doctors. All the members are doctors and three-fourths are panel doctors. It may be said, generally, that the panel committee must be consulted by the insurance committee on all matters (e.g., the alteration in the terms of service) which materially affect the insurance doctor. The panel committee is also a body which can be consulted by the individual doctor on any matter of doubt, more particularly when the opinion of the profession rather than the official view is desired.

ALLOWANCE FOR SUBSCRIPTIONS IN ASSESSMENT FOR INCOME-TAX.

THE question of allowance of subscriptions to medical societies and periodicals is one which often arises, and we have received the following letter on the subject from a correspondent:—

"SIR,—Can you refer me to a regulation or a definite ruling to the effect that medical men are entitled to deduct, when making returns of their income for assessment of income-tax, the expenses incurred by subscribing to medical societies and periodicals? I am employed whole time by the Ministry of Pensions for a definite salary; two or three years ago, after a long discussion, I succeeded in persuading the Inspector of Taxes for this district that I was entitled to allowances for such expenses on the ground that a medical man must keep his professional knowledge up-to-date, and the deductions were accordingly allowed for two or three years. The Inspector of Taxes has, however, now written to me as follows:—

"'With regard to your claim for allowance of the expense of subscribing to certain periodicals and professional associations, I have referred to previous returns and correspondence, but I do not find any evidence that the purchase of the periodicals in question, or membership of the associations, is an indispensable condition of the continuance of your office or employment under the Ministry of Pensions. If such is the case, and evidence is available, will you kindly let me have it? In its absence I consider that the allowances made in the past were not properly due, and I shall be quite unable to continue them.'

"The suggestion seems to be that as I am in Government employ it is not necessary for me to keep my knowledge up-to-date."

Where the question of allowance of subscriptions to medical societies and periodicals occurs in connexion with a practice there is no difficulty, for the assessment is then under Schedule D, one of the rules of which provides for a deduction of expenses "wholly or exclusively laid out for the purposes" of the profession. Where, however, the assessment is in respect of employment, and therefore under Schedule E, the Inspectors of Taxes usually object to allow such subscriptions on the ground that they are not provided

for in the rule requiring the expenditure of "money wholly, exclusively, and necessarily in the performance" of the duties. It has been urged in a similar case that a professional position requires professional qualifications, that such qualifications necessitate membership of professional societies, and that such membership involves the payment of annual fees for subscriptions and periodicals. The ruling, however, by the Board of Inland Revenue was that, in their opinion, the expenses in question did not fall within the provisions of Rule 9 (as to expenses), and that a deduction was, therefore, not admissible. It will be seen, then, that whilst the subscriptions are usually allowed to the man in actual practice, such a subscription is not allowed where a salaried position is being filled. In the latter case it is considered that unless the conditions of the agreement embody the requirement to belong to a society, the subscription thereto cannot be considered to be "wholly, exclusively, and necessarily" expended.

There is justification for the medical associations to urge that, where a professional qualification is required in the fulfilment of an appointment, the annual fee in connexion therewith should be allowed, and it would be well to take a test case to the Special Commissioners on the point.

Reports and Analytical Records.

"VULCAN" ELIXIR.

(MESSRS. MORSON AND SONS, 47, GRAY'S INN-ROAD, LONDON.)

THIS preparation—supplied in the form of a liquid—is intended as a tonic and as a general stimulant for the nervous, muscular, and digestive system. It is stated to contain lecithin, cerealin (wheat phosphates), papyotin (vegetable pepsin), nux vomica, milk-sugar, and the accompanying mineral constituents, potash, lime, iron, &c. The chemical examination shows total extractives (solid matter) 38 per cent., water 62 per cent., and the presence of milk-sugar, iron, lime, and phosphates, and, in general, substantiates the composition as set out by the manufacturers. The elixir contains no alcohol, it possesses an agreeable flavour, and constitutes a useful addition to this class of tonic. The presence of papyotin should serve to supplement the protein-dissolving enzymes in the gastric and pancreatic secretions in cases where diagnosis indicates a deficiency of these in the patient.

(1) CARDIBAINE; (2) DIGIBAINE.

(ANGLO-FRENCH DRUG COMPANY, LTD., 238A, GRAY'S INN-ROAD, LONDON, W.C. 1.)

We have received from this firm samples of these cardiac tonics of which the former is crystallised strophanthin, called Ouabaine in France, and the latter is a combination of the former with digitalin. Ouabaine is strophanthin prepared from *Strophanthus gratus* in a state which the pharmacologists have taken care should be one of perfect purity from the collection of the seeds, which is carefully supervised, to the last stage in preparation. Of the recognised use of strophanthus as a cardiac tonic and diuretic nothing need be said here. Cardibaine is administered orally and intravenously, but a warning is issued against intramuscular injection as dangerous and even impracticable. The intravenous method is used when rapid results are required as in acute dilatation of the heart. The drug is supplied in ampoules containing ¼ mg. for intravenous use, and in solution for use by the mouth, when the dose is from 15 to 30 drops twice or thrice daily according to a physician's prescription. Digibaine, the combination of Ouabaine with digitalis, which is indicated in cardiac conditions where digitalis is ordinarily employed, has been found of value by French physicians, who have tried it in prolonged tonic cardiac treatment, for valvular conditions with lack of compensation and cardiac insufficiency. This drug is also supplied for oral and intravenous use.

ALLONAL.

(HOFFMANN-LA ROCHE CHEMICAL WORKS, LTD., 7 AND 8, IDOL-LANE, LONDON, E.C. 3.)

The full name of this preparation showing its composition is allyl-isopropyl-barbituric acid with phenyl-dimethyl-amino-pyrazolon. It is put forward as a hypnotic and analgesic which can be employed as a substitute for morphine as it seems to have no habit-forming propensities. Numerous clinical reports have been published in the American medical press, but the drug is new to the English market. American experience goes to support the claims of the manufacturers that allonal is a remedy of real value for controlling insomnia and pain. As the preparation contains a derivative of barbituric acid it comes within the scope of the Poisons Schedule and is only supplied to registered practitioners and pharmacists.

MERCUROCHROME.

(W. HARRISON MARTINDALE, 10, NEW CAVENDISH-STREET, LONDON, W. 1.)

Mercurochrome "220" has a chemical composition—dibromo-oxy-mercury fluorescein, or its sodium salt. The compound contains over 20 per cent. of mercury, but, as a vesical antiseptic in a 1 per cent. aqueous solution, can be tolerated by the bladder for one to three hours without occasioning pain. It has been referred to in medical literature as being rapid in effect as an antiseptic in cystitis and pyelitis; it has also been used in gonorrhœa, chancroids, and as a dressing for buboes. We have here a preparation which acts as its chemical composition would lead us to anticipate. It is supplied in 10-g. bottles at the price of 13*s*., but a 1 per cent. solution ready for use as an antiseptic bladder injection is sold in 4-oz. bottles, price 3*s*.

SANTOPERONIN—A NEW ANTHELMINTIC.

(ORBIS WORKS, LTD., BRUNSWICK; MATTHEWS AND WILSON, LTD., COLE-STREET, LONDON, S.E. 1.)

The very high price of santonin at the present time has stimulated the demand for an effective substitute as a therapeutic agent in the treatment of intestinal parasites such as thread-worms and round worms. A preparation that has recently been submitted to us for this purpose is santoperonin, which is claimed to be extremely effective against the foregoing parasites and also against tape-worms, which of course are very resistant to santonin. Santoperonin is a reddish-brown powder, insoluble in water, and containing copper in combination with an organic substance the constitution of which is somewhat indefinitely described as being a derivative of phenol and a lactone derived from naphthalene, and bearing in Germany the name of santoveronin. Santonin itself is a lactone derived from naphthalene, but also contains a ketonic group, and recently it has been shown that the active principle of male fern is a phenolic compound, and in santoperonin an attempt has been made to combine the therapeutic effect of these two substances and also the anthelmintic properties of copper. The sample submitted to us contained sulphate, but otherwise appeared to agree with the maker's description. Although insoluble in water, santoperonin is decomposed by dilute mineral acids with liberation of the corresponding copper salts, and therefore acids and acid foods should be avoided when it is used, and it is also advisable to administer it in conjunction with magnesia to prevent it from being attacked by the gastric acids. The use of calomel or of phenolphthalein with santoperonin is also contra-indicated.

The dose of santoperonin is 0·03 g. for adults, and 0·01 to 0·02 g. for children, two to three times daily. It is free from the horrible taste of male fern, and appears to be agreeable to take. Its use is stated to be free from danger, an accidental overdose merely producing vomiting with ejection of the drug. Eulogistic clinical reports are given by Wolfheim (*Der Landarzt*, Nov. 1st, 1923). In view of the small doses required and its lower cost, it should prove more economical than santonin in the treatment of round worms and thread-worms, and it may possibly prove superior to pelletierine tannate in the treatment of tape-worms.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 23, 1924.

THE CAMPAIGN AGAINST CANCER.

A WISE distribution of any moneys entrusted to the British Empire Cancer Campaign is now assured. The Scientific Committee appointed to advise on the administration of the funds collected by the British Red Cross Society for the campaign consists of the following distinguished members: Sir JOHN BLAND-SUTTON, Dr. H. H. DALE, F.R.S., Sir RICHARD GARTON, Prof. F. GOWLAND HOPKINS, F.R.S., Dr. ROBERT KNOX, Sir WILLIAM LEISHMAN, F.R.S., Prof. C. J. MARTIN, F.R.S., Prof. ROBERT MUIR, F.R.S., and Sir HUMPHRY ROLLESTON. It is stated—not very exactly—that half of this number have been selected jointly by the Medical Research Council and the Royal Society. The general aims of the campaign are set out in modest language in the manifesto, and are worthy of public support. No extravagant promises are made, but it is pointed out that more money means more research workers and better facilities for their work, that investigations can be pushed in fields as yet untouched, that variations in cancer incidence in different parts of our own country and abroad may be explained, and that dissemination of the knowledge thus acquired must help towards success against one of the most dreaded scourges that afflict mankind. In the nine months since the campaign was first started £70,000 have been collected, and though it is hoped ultimately to obtain a much greater sum, the Scientific Committee is to be called upon to apply the money already received without delay. Its specific functions will be to devise schemes of research and to advise and report upon questions relating thereto, including the allotment and application of funds. The Committee will also be closely concerned in maintaining communication between workers all over the world, in making their results and discoveries mutually available, and in keeping the public informed of the nature of the problems to be solved, and the progress made towards their solution.

In wishing good speed to a movement which is now proceeding under such happy auspices, we would add one more to the messages that have been sent to subscribers, actual and potential. We have already hinted that they must be prepared to pay the piper without calling the tune. This will be the less irksome, since the untrained sympathiser is for the most part not able to distinguish between the tunes. And workers in laboratories dedicated to research on cancer or any allied problem cannot be marshalled and organised like an army; they serve not one but many kings, and are as careless of the etiquette of the battle as are members of foreign legions. But one thing must not be forgotten: they are not merely mercenaries. They will coöperate gladly as individuals, but at a hint of autocratic control they disappear from the field, to fight the problems of another disease in their own way, with their own weapons. Thus coöperation cannot be enforced; neither can overlapping be prevented until we have an official audit of the results of research—a prospect far enough off at present. The only guarantee that any new weapon has been well planned and forged is that others can use it with as good effect as its inventor. The contrast between the immense literature on insulin which has arisen since 1921 and the comparative silence that has followed other apparently important discoveries announced within recent years is significant. The speed with which a crowd of workers appears at the centre of a new and hopeful discovery is like the rush to a reputed gold mine. Claims are staked out, lines of communication are established; if there is no gold after all, the crowd soon fades away. But when the existence of a mine is proven, one man cannot work it alone. The success of Japanese workers in producing cancer in mice by painting with tar stimulated investigators in many different laboratories throughout the world to try this method, and the result of this overlapping has been to create a new era of research in which the Japanese technique is the beginning, not the end, of experimentation.

One point remains to emphasise in fairness to those who have already devoted their lives to cancer research. The absence of knowledge as to the cause or the cure of cancer has misled many into thinking that little is known of this disease. And yet, just because there is no parasite to distract the attention of workers from the bodily lesions, or because experimental production of these lesions has till recently been impossible, it is actually the case that the descriptive pathology of cancer is more developed and better known than that of almost any other disease. Classifications in terms of malignancy, of embryonic tissue of origin, of distribution, of histological appearances, are numerous and are all justified; early symptoms and signs are defined; and treatment, both operative and palliative, has been worked out in detail. All this information has been laboriously collected and recorded for a long term of years. Even now more is known about the pathology of cancer than about the pathology of diabetes mellitus. It may need but the touch of some magic wand to transform this enormous pumpkin into a coach which will drive us to complete enlightenment. Let us hope that the British Empire Cancer Campaign will prove the fairy godmother.

CHILDREN AND YOUNG PERSONS.

WE noticed last week certain prominent aspects of the Children, Young Persons, &c., Bill, which has just been published as a document of 150 pages, containing 200 clauses, many of whose provisions, as we said, will command the universal approval without which the Bill cannot become law. The document should be read by medical men, who will see in the bold proposals evidence of a new spirit of social and domestic reform, quickened undoubtedly by the growing influence of the women's vote.

If the Bill is examined in order to compare its wording with the law as it stands to-day, we find that, quite apart from the sweeping changes of principle, the minor details manifest a progressive amplification. Gaps are closed; the old scales of penalties are made steeper, and the old precautions and protections are strengthened. Examples of this process are furnished by the clauses dealing with prevention of cruelty. The present offence of failing to provide "adequate food, clothing, medical aid, or lodging" (under Section 12 of the 1908 Act) reappears in the Bill as failure to provide "sufficient and proper food and clothing, or sufficient lodging, or any requisite medical or surgical treatment." Neglect causing injury to health already covers mental derangement; the Bill adds also "any loss or diminution of mental power." Another familiar section of the Children Act of 1908 penalises a person who, going to bed under the

influence of drink, suffocates an infant under 3 years of age lying in the same bed. The new Bill enlarges "bed" to include couch, sofa, or chair, and "drink" to include drugs; it raises the age limit from 3 to 7, and extends the offence to persons who take drink after going to bed. Little points like these show that the draftsman has been directed to leave no loopholes, and medical evidence of many deplorable inquests has furnished the arguments on which the stiffening procedures have been based. Naturally the elaboration manifests itself in varying degrees of importance. The Act of 1908 forbids juvenile smoking, and allows a constable or park-keeper to confiscate the cigarettes of a person apparently under the age of 16, and to "search any boy so found smoking, but not a girl." Here was a gap to be stopped, and so the new Bill adds a proviso that girls too may be searched by women constables and women park-keepers, though we wonder if girls of 14 and 15 smoke in the parks to this significant extent. A more valuable innovation occurs over the removal of children from the custody of a convicted parent or from an otherwise undesirable home and their commitment to the care of some "fit person." These last two words are to cover any society or body corporate, existing or future, established for the reception and protection of poor children or for the prevention of cruelty to children. If such "fit person" can satisfy the magistrates that the child is a lunatic or defective, or a confirmed epileptic, or a sufferer from cancer or tuberculosis, or that its earning capacity is affected by impaired powers of sight, hearing, or speech, the commitment order can be extended in duration till the child comes of age.

Legislation along these detailed lines will hardly arouse controversy, except upon the lines ever open to the disputant that penalties are being suggested in directions where convictions will be difficult. Nor will the revision of the enactments about industrial and reformatory schools—a topic excluded from the scope of the consolidating Education Act of 1921—endanger the prospects of the Bill, nor the clause which seeks to prohibit the printing or publishing of the name or address of any child or young person charged with any offence short of murder or serious assault. There is, however, no disguising the fact that the Bill contains controversial elements. Anyone who recalls the delays and modifications imposed upon the Bishop of London's 1914 Bill before it emerged as the Criminal Law Amendment Act of 1922 will remember the sharp conflict over proposals to raise the age of consent. Similar hostility probably awaits the present proposal to abolish the defence, in certain cases of criminal assault, that the accused reasonably believed the girl to be 16, while it may be remarked that this defence will, it seems, still be open to a priest who is liable to two years' hard labour if he celebrates the marriage of a girl under 16. The new proposals for compulsorily clearing the court in certain cases will invite the comment that only two years ago it was found desirable to cancel the 1908 provisions for trying incest cases in camera. Criticism may also fasten upon the fact that in a Bill which in general purports to limit the criminal liability of children and young persons there appear to be some marked extensions of that liability. The 1908 sections which penalise the suffocation of infants in bed and the exposure of children under 7 to the danger of being burnt or scalded at an unprotected fire-grate apply only to offenders who are 16 years of age; the new Bill omits this age limit. Finally, some critics may think it unnecessary to provide that a boy of 14 or 15 must not be sentenced to be whipped, while a boy of 12 or 13 may still be whipped upon summary conviction. These points, however, if they be matters for disapproval, affect legal and judicial rather than medical opinion.

Bills which merely consolidate existing law are often blessed with a smooth and rapid passage through Parliament. The new Children Bill both consolidates and amends, and the amendments are frequent and substantial. If it should not at once attain the success for which its advocates are hoping, it will nevertheless be of value as a comprehensive statement of social policy upon which civic attention can usefully be focused.

RADIUM THERAPY.

WE have learned to look to the annual reports issued from the Radium Institute not only for a clear account of the year's work but also for an instalment of the serial story of radium therapy. The report for 1923, just issued, brings no disappointment, for 15 of its 30 pages are devoted to remarks on radium therapy in diseases of the thyroid, thymus, spleen, and lymphatic system, corresponding to the discussion last year of the uses of radium in diseases of the alimentary canal, and the description of its application to gynæcological conditions in 1921. The general account of the year's work, with a table of cases seen for the first time in 1923, is compressed into seven pages, while a summary by DR. J. C. MOTTRAM of the five papers published from the research department during the year, and a technical report of the work under the charge of Mr. W. S. S. ALTON in the chemical and physiological laboratories, complete the report.

Mr. A. E. HAYWARD PINCH, the director of the Institute, notes that the provision of a limited number of bedrooms for the reception of in-patients has proved of great value. The available accommodation is always in demand and its early extension is announced. The programme outlined for occupying the patient between the four periods of exposure into which prolonged gamma radiation is divided shows a consideration for his comfort rare in institutions: the hours of treatment and rest are so disposed that the patient's normal habits of life are but little disturbed. The policy of declining to treat operable cases of malignant disease, other than rodent ulcer, has been rigidly adhered to, except when the patient has definitely objected to operation. This steadfast refusal to substitute for an established method, with definite and permanent cures to its credit, one which is still on trial must confirm the respect in which the Institute is held by the profession in general, and especially by surgeons. Indeed, the coöperation of surgeons has recently been sought with greater frequency, in order to provide the most convenient and effective access of the radium tube to the growth. The treatment of laryngeal tumours by subhyoid pharyngotomy, and of carcinoma of the cardiac end of the œsophagus by radium through a gastrotomy opening offer examples of a combined technique which is likely to develop still further in the future. The value of the combination of diathermy with radium is also insisted on, especially in the relief of carcinoma of the tongue and mouth. The general trend of radium therapy, other than that of abdominal viscera, is in the direction of increase of dose, the systemic disturbance caused by a large dose being transient. Radiation of the abdominal cavity, however, must be less concentrated, since the goblet cells of the intestine are peculiarly susceptible to gamma rays and when damaged are liable to infection

from the canal. Mr. HAYWARD PINCH seeks again to dispel the prejudice against radon—the name recommended by an international committee to replace the clumsy "radium emanation"—among practitioners. The therapeutic effect of radon and radium salt is stated to be identical; that the former gradually loses its potency, whereas the latter retains it almost indefinitely, is no real disadvantage, since the rate of decay does not vary and can be calculated in advance. The advantage of borrowing a highly compressible gas of no intrinsic value in a small tube rather than of an applicator containing some hundreds of milligrammes of a most expensive salt, with all the attendant risks, should be obvious. Advice is freely given to practitioners on treatment with radon apparatus, and where precise information of the nature and extent of the disease or growth is furnished full instructions as to technique and exposure will accompany the apparatus lent.

It will be seen that much useful information is given in small space. The least enlightening sections of the report are the tables; these comprise only a classification of patients who were seen for the first time between Jan. 1st, 1923, and Dec. 31st, 1923. The statistics as regards malignant disease of an institution where none but inoperable cases are treated could certainly not make encouraging reading if supplied over a term of years, and even those of certain medical diseases would probably be depressing. Great interest, however, would attach to the present condition of patients first examined before January, 1923, of whom we are told nothing, except that many of them were still under treatment during the past year. The difficulties of following up cases are admitted, and we do not suggest that special efforts should be made to keep in touch with old patients where this would entail trouble and expense that could not fairly be incurred. But since it is claimed that radium increases the duration as well as the comfort of life for certain incurable patients, an additional table chronicling the present condition at least of all who are still in attendance would be welcome. The only other criticism to be made refers to the headings under which cases are classified. The column headings common to both tables are as follows:—Table I. having an additional column differentiating the diseases treated: examined but not treated (31), recent report not received (127), received prophylactic radiation only (25), apparently cured (137), cured (93), improved (328), not improved (94), abandoned treatment (10), died (23). The absence of information as to the period regarded as recent—the whole period under consideration is only one year—prevents full estimation of the value of the other details supplied. In pleading for a revision next year of the way in which the tables are compiled, the hope is shewn that the undoubted value of radium therapy may receive more general recognition and that especially in certain otherwise intractable medical diseases it may be given a trial. There is set out on p. 409 an account taken from the report of the beneficial effect of radium in diseases of certain glands and of the lymphatic system. Of the five cases of lymphadenoma first seen during 1923, three showed improvement after treatment and one was apparently cured, whereas of each form of leucocythæmia four cases were treated and two showed improvement. A closer coöperation between surgeons and those undertaking radium therapy has now been secured; it remains for physicians to take fuller advantage of such hopeful signs as are available that this agent has at least the power of postponing death in certain dangerous diseases of the blood.

AFTER-CARE FOR THE TUBERCULOUS.

> "Teaching Chinese to a Negro, infusing a Latin-American with a Puritanical outlook on life, or inducing statesmanship in a politician, are problems equal in toughness to finding a suitable job for a tuberculous person, and keeping that person in that job."

So difficult is the problem of after-care in tuberculosis, in the words of Mr. J. BYRON DEACON, director of the New York Tuberculosis Association. In this country the solution of the problem looks more hopeful in the light of two public announcements. The Minister of Health decided that the time had come for removing the present restrictions on grants for the development of the tuberculosis service, and at the same time the Minister of Pensions issued instructions designed to secure the coöperation of all local agencies in the after-care of ex-Service men suffering from tuberculosis. Everything possible is to be done to assist these men to obtain employment in a suitable occupation, but it is desirable to be frank about the difficulties. Pensioners now receiving sanatorium treatment are for the most part either cases of chronic advanced tuberculosis or of chronic bronchitis with quiescent (or only suspected) tuberculosis. The former are unfit for work; the latter, being very dependent on climatic conditions, are not satisfactory from the employers' point of view. Many pensioners have been idle for so long that recommencement of work is difficult, mentally and physically; if they do not give satisfaction in the first few days they are liable to be discharged. The objection of employers to a tuberculous employee has fourfold origin: (1) His efficiency is, almost invariably, considerably less than that of the average worker; (2) customers and fellow-workers object to one who coughs, or has scars or deformity resulting from a surgical operation; (3) any case of tuberculosis occurring among fellow-workers will be ascribed to the patient, even should he be actually non-infectious; (4) some moral obligation is felt to help an employee who has a temporary or permanent relapse. Special facilities for pensioners at the employment exchanges must, therefore, be supplemented by arrangements and personal interviews with employers, and by general education of the public. It is difficult for the tuberculosis officer, overwhelmed as he is with clerical and other non-clinical work, to find time for this, but every such officer who is worth his salt has already worked on the lines suggested by the Minister of Pensions. Industrial workshops on the model of Dr. C. F. PEDLEY'S "graded factory" (THE LANCET, Feb. 16th, p. 369) are well worth a trial, although here again there are serious hindrances, the chief of which are: (1) To conduct such a business without serious financial loss, (2) to avoid conflict with trade-unions over questions of wages, (3) to find a market for goods, which may require preliminary disinfection.

In a recently published book,[1] with the title, "How Shall I be Saved from Consumption?" Dr. HENRY A. ELLIS gives much useful advice to the potential consumptive. He calculates that £1 spent judiciously on after-care is worth £3 spent on the dispensary, and £1 spent on the dispensary is as fruitful in good results as £6 spent on a sanatorium. This is also the chief lesson now being taught by the New York Tuberculosis Association. In its *Bulletin* for November and December, 1923, Mr. DEACON puts the matter graphically in the following words:—

> "Picture a fine foot-bridge built across a swamp, but left uncompleted just a few spans short of solid ground, thus obliging those who use it to step off and wade through the bog to cover the last lap to firm earth . . . just short of landing the consumptive on the solid ground of social and industrial readjustment. Six millions of dollars are expended each year for the maintenance and treatment of the tuberculous of New York City, in hospitals and

[1] How Shall I be Saved from Consumption? By Henry A. Ellis, B.A., M.B., Ch.B., assistant physician to the Margaret Street Hospital for Consumption, London. London: George Allen and Unwin, Ltd. 1923. Pp. 190. 6s.

sanatoria. An additional 5 per cent. expended on after-care would complete the bridge."

The same author calculates that about one-half of all the tuberculous in New York may be classed as permanently disabled, unfit to work full time all the time. He assumes that New York City has 20,280 tuberculous wage-earners or housekeepers, half of whom require help, supervision, and after-care. Realising their needs, the New York Tuberculosis Association has decided to organise a "vocational and placement service," the duties of which are to discover suitable occupations for persons with quiescent or arrested tuberculosis. Since research is an important part of this service, accurate and detailed records are kept by the staff, which consists of an executive, a medical consultant, two "placement" secretaries, a medical social worker, and a clerk-stenographer. A grant of money from the Laura Spelman Rockefeller Memorial has assured the continuance of this interesting experiment for three years, in the course of which it is hoped that a significant demonstration will be made. Meanwhile it is instructive to study the balance-sheet of the New York Tuberculosis Association published in the same number of its *Bulletin*. Of the $187,754.42 spent for the year ending Oct. 31st, 1923, nearly 20 per cent. was spent on training in health workshops men who were recovering from tuberculosis. Another 4 per cent. was spent on finding suitable employment for men and women on the road to recovery from tuberculosis. Health education (lectures, posters, newspapers, &c.) absorbed 28 per cent., and other health information work 9 per cent. Health work among children (holidays in the country, dental hygiene, &c.) absorbed 12 per cent. Research work has required 8 per cent. and general administration 9 per cent. The most striking feature of this balance-sheet is its disclosure of the fact that the New York Tuberculosis Association is attacking the problem at its two ends, and is hardly even nibbling at what is commonly regarded as the centre of the problem. More than 50 per cent. of the Association's funds are spent in research, education, and prevention, and almost a quarter is spent on after-care. There can be little doubt that the three-year experiment on after-care, to which we have just referred, will show that the New York Tuberculosis Association has been well advised in devoting so much of its finances to this hitherto much neglected section of the anti-tuberculosis campaign.

IN HONOUR OF DR. BRACKENBURY.

THE desire to recognise the eminent services to his profession of Dr. H. P. Brackenbury will find, we are sure, very general expression in all medical circles. An influentially signed letter in our correspondence columns calls attention to his brilliant work in presenting the case of the insurance practitioner before the recent Court of Inquiry. At one point in this inquiry the chairman of the Court so far lost official self-control as to say how fortunate the medical profession should count itself in having such an able and persuasive advocate as Dr. Brackenbury. He added, amidst laughter, "We shall have to steel our hearts against being unduly influenced by his pleadings." He did not add that although in the past Dr. Brackenbury may on occasion have been nettled by his friends, he has never been known to lose his urbanity in the presence of opponents. The first dinner in his honour was given by the London Panel Committee during a period of sharp internal criticism of the Insurance Acts Committee, and the warmth of feeling then shown proved not only very welcome to him, as the chairman of that committee, but was evidence of the confidence in his knowledge and advocacy felt by his professional colleagues. On a subsequent occasion Dr. Brackenbury himself stated that he wanted no better reward than the loyalty and sympathy of his colleagues. That reward he may rest assured of possessing.

Annotations.

"Ne quid nimis."

INFECTION BY PUBLIC TELEPHONE.

THE possibility of transmitting infectious disease through the use of public telephones is one that naturally concerns health officers, and the Postmaster-General has recently issued a press notice asserting that there is no real risk in the use of telephones in public call offices, and that the alarm raised from time to time has no foundation in fact. It may be useful to set out briefly the medical opinions on which this assertion is based. In 1905 Dr. William Collingridge, then medical officer of health for the City of London, caused some bacteriological experiments to be carried out in conjunction with the National Telephone Company for the purpose of ascertaining whether call office telephones, if used by persons suffering from contagious or infectious diseases, were likely to be a source of danger to the public. Prof. E. E. Klein, who carried out the investigation at St. Bartholomew's Hospital, reported that the results confirmed a previous inquiry by the City medical officer of health, and proved that there was no risk of infection. As a result of growing public interest Mr. Herbert Samuel in 1910 gave instructions that a number of telephones fitted in call offices in London, which had been in use for various periods of time and had received no special cleansing treatment other than that normally given to telephones of the kind, should be examined by an expert bacteriologist. The mouth-pieces were chosen from call offices at railway termini, post offices, meat markets, and other places of general resort, and were forwarded to Dr. H. R. D. Spitta at St. George's Hospital. In addition, Dr. Spitta was also furnished with a mouth-piece which had been used by a tuberculous patient, and with others from the Tidworth Sub-Post Office which had been used by consumptives from the South Brent Sanatorium. Dr. Spitta reported that his experiments had confirmed in every respect the results obtained by Prof. Klein six years before. The mouth-pieces examined were free from tubercle and diphtheria bacilli, and no other organisms pathogenic to guinea-pigs were present. It was thought desirable, however, to conduct a further series of experiments with telephones which had been used solely by tuberculous patients, and arrangements were accordingly made to fit telephones in the Frimley Sanatorium for the use of the consumptives there. These telephones were kept in use for periods ranging from seven days to four weeks and were then forwarded for examination. In February, 1912, Dr. Spitta submitted a second report to the effect that this further series of experiments was entirely negative in its results, and that with the data thus afforded, and in view of the results of his former experiments, he was of opinion that the transmission of tuberculosis through the medium of the telephone mouth-piece was practically impossible. These results were borne out by an independent inquiry initiated by the American Government. The Postmaster-General alluded in his press notice to the routine precautions that are taken to ensure this measure of safety. The call offices are cleaned and the transmitter mouth-pieces and receiver caps disinfected at intervals of about three days. The cleaning of public call offices situated in residential flats, shops, and other private premises is undertaken by the tenants of the premises, while the cleaning of call stations in post offices is carried out under the supervision of the postmaster.

TETRAGENUS SEPTICÆMIA.

ACCORDING to Mlle. Raissa Falk-Trotsky,[1] of Petrograd, who records three cases in her Paris thesis, two of which are original, *M. tetragenus*, which is a saprophyte of the skin and nasopharynx, is

[1] Thèse de Paris, 1923, No. 285.

capable of becoming virulent and giving rise to septicæmia. This form of septicæmia usually develops in association with other micro-organisms, especially the tubercle bacillus. Two forms of tetragenus septicæmia have been described—viz., a mild form characterised by fever, gastro-intestinal disturbance, and transient pleuro-pulmonary symptoms lasting from three or four days to about a week, and a malignant form, characterised by multiple lesions, deep-seated and subcutaneous suppuration, intense toxæmia, prolonged duration, and frequent relapses. The diagnosis of tetragenus septicæmia is impossible apart from an epidemic, but considerable diagnostic importance is to be attached to the hectic character of the fever, the multiplicity of the lesions, the absence of any important symptoms such as enlargement of the spleen, when the condition simulates typhoid fever, or of laryngo-bronchial catarrh in cases resembling influenza, and the frequency of remissions and relapses. An exact diagnosis, however, can only be established by direct examination of the pus, blood cultures, and serum agglutination. The immediate prognosis is relatively good, even in the severest forms, but the remote prognosis should be guarded owing to the frequency with which tuberculosis develops. The use of auto-vaccines is the best method of treatment. A bibliography of recent literature is appended to the thesis.

PRIMITIVE PATIENTS.

"WHAT a mean fellow you are!" said a Congo chief to the Rev. W. H. Bentley, who had cured the native of an illness and had come to inquire after his health. "What a fuss you made! I had to eat a fowl and feed well; what strange things you white men are! Why did not you give me a present when you left? What a mean fellow you are!" This passage is cited from Prof Lévy-Bruhl's "Primitive Mentality," a work of which one of the most interesting chapters is headed The Primitive's Attitude to European Remedies. Here are set down numerous instances of the curious demeanour of Central Africans, natives of New Guinea, Battaks, Basutos, Melanesians, and South American Indians towards the medical men, lay and missionary, who have helped them. When cured of a large and loathsome ulcer, for instance, they expect a solatium from their benefactors. Nor can they understand why the demand of a present appears illogical to the white doctors. Prof. Lévy-Bruhl explains the attitude of the native in a manner at once surprising and convincing. The native, in the first place, is not aware that the medical man has taken any real trouble in his case. His attendances, often laboriously undertaken, his prescriptions, soup, rest, bandages, and so forth are to the native so much hocus-pocus, the kind of thing a medicine-man must "keep up" in order to maintain his mysterious prestige. Any good medicine-man, as every primitive knows, has such virtue within him that he could cure a man right away by his mere touch. If, therefore, the native submits to a long and tiresome treatment he does so with his eyes open and as one playing into the hands of a conjurer. He humours the white healer just as he would humour a native wizard. But he expects to be paid in kind for his complaisance. "I have played into your hands, my good sir," he says in effect, "and I deserve a reward—a yard or two of cloth, or a pocket-knife. Better still, I deserve to be kept by you in future, fed, clothed, and all." The Rev. J. Mackenzie had cared for and cured a native whose face had been terribly lacerated by a tiger. "My mouth is not exactly where it used to be," said the native condescendingly, ". . . but the wound is quite whole. Everybody said I should die, but your herbs cured me. You are now my white man; please to give me a knife." After some further pour-parlers the medical missionary "gave the man up as a very wonderful specimen of jumbled ideas." But the man was less oblique than his mouth. He was following, as Prof. Lévy-Bruhl clearly shows, a definite line of primitive thought. In allowing himself to be treated by a foreigner, a man with other and distant gods, other "medicine," other habitat, totem, and tribal connexions, he as a good native of the districts north of the Orange River, with his own gods (ancestors), medicine, habitat, totem, and tribalism, had taken immense risks, and, though cured, now found himself a kind of lost soul in limbo, a man cut off from his own ancestral and tribal environment. He now clung to his benefactor, who had become his "white man." And the least that the new white man, now responsible for him in this world and the next, could do was to give him a trifling present, the first of many to come. Sometimes the primitive dodges these vast risks. He lends himself for a specified period to the dangerous alien influences. Thus a powerful South Sea Island potentate allowed his young wife to become a Christian while undergoing a cure, but with the proviso that she was to return to her native gods after the treatment, as she would have to be strangled on the day of his death. She was at least to die in spiritual safety.

We read between the lines in the pages of Prof. Lévy-Bruhl, and are constantly reminded of parallels between the mental attitude of natives and the primitives to be found in many out-patient rooms and poor practices. It is common for hospital patients to believe that by allowing themselves to be treated they confer a favour upon the physician or surgeon. In its crudest form the belief involves the assumption that the doctors should be glad of an opportunity to practise, but the attitude of a "show patient" often indicates a sense of mutual obligation which, if we search our hearts, is not without foundation. Pride in a good job well done, apart from a welcome enhancement of reputation, may stimulate a feeling of gratitude towards the patient who has provided the occasion. That the situation may be recognised by the patient was shown by a wounded soldier who, told that the attempt to save his leg had failed, replied to the surgeon, "Well, sir, I've wanted it off for a long time, but you seemed so interested that I didn't like to say so." In this sentiment, put forward respectfully and with good intent, is expressed the idea of a favour conferred. The medical missionary, like the surgeon in this case, is keen to exercise his art, and the intuitive savage may be trusted to recognise this keenness. From this is a short step to the belief that any obligation is on the side of the healer and this process may account for some of the examples that would not be covered by Prof. Lévy-Bruhl's ingenious generalisation. The fear of the "doctor," the contempt of him, followed by ingratitude or a demand for money, are not unknown to many a surgical dresser in the east ends of large towns. Motives of policy have doubtless restrained our author from emphasising parallels, a large treatise upon which might yet be written.

THE INFLUENCE OF ATMOSPHERIC PRESSURE ON AN ARTIFICIAL PNEUMOTHORAX.

IT has been known for many years that patients undergoing treatment by artificial pneumothorax may experience some discomfort on going from a low to a high altitude, but few exact observations have been made, such as those recorded by Dr. C. Mantoux in *Revue de la Tuberculose* (1923, vol. iv., No. 6). The patient on whom the observations were made was given a refill of 310 c.cm. of nitrogen in the right pleural cavity on Sept. 19th at 1.50 P.M., when the barometer at Chamonix registered 712 mm. of mercury. The initial pressure of −6 was raised to +9 by the injection, the pneumothorax being complete. At 2.25 he left Chamonix, which is 1050 metres above the sea, and he arrived at Montenvers, which is 1914 metres above the sea, at 3.15, experiencing a sensation of fullness in the chest on the way, and slight pain over the base of the left lung on his arrival at Montenvers. A pleural rub, which had not been heard earlier in the day, was now demonstrable over

the base of the left lung. At 3.35 exploratory puncture showed the intrapleural pressure to be +17. The barometer measured 656, or 56 less than the barometer in Chamonix. During the patient's short sojourn at Montenvers, the respiratory discomfort and cough rapidly diminished, and had completely disappeared by 4.10. He left Montenvers at 4.40, reaching Chamonix at 5.25, when the barometric pressure was 709. At 5.55 the pleural rub was found to have disappeared, and the intrapleural pressure to have fallen to nil; on the injection of 100 c.cm. of nitrogen the pressure was again brought up to +9, without causing respiratory distress or the recurrence of a pleural rub and pain. Although it is evident from these observations that the rise in the intrapleural pressure caused by an ascent to a high altitude is rapidly neutralised by the absorption of the gas, some distress may be experienced in the interval by patients with a total pneumothorax which has recently been refilled. A comparison of the barometric with the intrapleural pressures showed that the actual rise of the intrapleural pressure was much less than that which would have occurred had not the gas been rapidly absorbed, and, perhaps, the relation of the bag of gas to the other contents of the thorax changed somewhat. The usual rate of absorption of nitrogen by this patient was 0·25 c.cm. per hour. On the present occasion, however, he had absorbed 100 c.cm. in about four hours. In other words, the rate of absorption had been increased a hundred-fold. The pleural rub heard over the left base had been heard on an earlier occasion when the intrapleural pressure on the right side had been raised to +17, and it was thus evident that this basal pleurisy was a response to an intrapleural pressure on the opposite side exceeding the optimum—an observation which may prove a useful guide when the optimum intrapleural pressure in a given case is being sought.

THE LISTER WARD AT GLASGOW.

ALL hope of the retention of his ward in the Royal Infirmary, Glasgow, as a permanent memorial to Lord Lister would seem to have disappeared with the beginning of its demolition. For more than a week, we are informed, the work of destruction has been in progress, and there does not appear to be any likelihood of its suspension; for the decision of the managers passed unquestioned at the annual meeting of the subscribers on Feb. 11th. If the whole matter be examined impartially, two facts of importance emerge. In the first place, the final decision of the managers to demolish the ward was made in spite of world-wide protest from a large number of medical and scientific societies. The signatures to these formal protests include those of surgeons of international repute, and of high academic dignitaries in many countries. It is evidently their considered opinion that no more suitable monument to Lord Lister and his work could be found than the ward in which his fundamental clinical data were obtained. It must be admitted that the majority of the signatories could not but be in ignorance of the local circumstances which forced the managers to their decision; their protests are therefore based upon sentimental grounds. On the other hand, there has perhaps been a tendency to see in the policy of the managers a continuance of the undoubtedly inconsiderate treatment which Lord Lister experienced at the hands of the controlling body of his time. We feel that the managers must be acquitted of any such charges. The Faculty of Medicine is well represented on the Board, and there can be no doubt that the final decision has been reached from no other motive than an earnest desire to further the economic and scientific weal of the infirmary. Moreover, thorough consideration must have been given to what may be termed "middle course" solutions of the problem, outlines of which have appeared in our columns and in the lay press of the city, and although Mr. James A. Morris (whose first appeal for the preservation of the ward we discussed in October) has issued a further plea, mainly on historical grounds, in which he states that the offer of £2000 for the cost of reconstruction still holds good, no action has as yet been taken on these lines. While the passing of Lister's workshop can only be regarded as the disappearance of a structure which symbolised the most important contribution to surgical science that has ever been made, the decision to demolish the ward has been reached after much consideration by a thoughtful and unbiased body of men. In these circumstances surgical science, and indeed humanity, must accept as his monument, now and in the future, the world-wide continuous application of his principles. From no lips more fittingly than Lord Lister's might there have come the proud declaration:

"Exegi monumentum aere perennius
Regalique situ pyramidum altius."

THE PHYSIOLOGY OF THE STOMACH AND DUODENUM.

IN England and the United States the advent of the duodenal tube has been the occasion for a revival of interest in the physiology of the stomach and upper alimentary canal more important than any which has occurred since the publication of the original observations of Pavlov. While the limitations of intubation of the human subject are definite, and the greatest ingenuity can never secure experimental conditions as exact as those given by a healthy animal with an accessory stomach-pouch, the value of experiments done actually upon human beings compensates for this to a considerable degree. The most important contribution to this subject published during the present year is that of M. McC. Baird, J. M. H. Campbell, and J. R. B. Hern, which appears in the current issue of the Guy's Hospital Reports.[1] Not only does this article contain very valuable original observations, but the writers have carried out most painstaking investigations on lines suggested by the work of other researchers. Of these the more important are the experiments in which the total chlorides of samples of gastric contents were estimated at varying periods after meals, confirming the work of C. Bolton and G. W. Goodhart, who proved[2] the importance of regurgitation of duodenal contents into the stomach as the main factor in diminishing gastric acidity in the later stages of gastric digestion. This mechanism was first described by Boldyreff[3] following observations upon animals; its importance was emphasised by T. Izod Bennett and J. A. Ryle[4] in their observations on normal human digestion; and the work of Bolton and Goodhart, confirmed by the present observations, establishes it as a normal part of the gastric digestive function. At the same time Baird, Campbell, and Hern produce new evidence of the action of the pyloric portion of the stomach itself acting as an alkali-secreting medium; here they make use of an ingenious method by which two tubes are employed simultaneously. One, lying in the stomach, enabled them to withdraw fractions of the stomach contents; the other, in the duodenum, was subjected to continuous syphonage, so that the duodenal contents were aspirated and regurgitation into the stomach prevented. This method, which has been employed for somewhat similar purposes by R. K. S. Lim, A. R. Matheson, and W. Schlapp,[5] has the advantage of giving much less complex information, but requires great patience on the part of the subjects experimented on.

In the course of the series of experiments under discussion the observers were again confronted by the paucity of our present knowledge concerning the mechanism of control of the pyloric sphincter.

[1] Guy's Hospital Reports, vol. lxxiv., No. 1, January, 1924. London: Wakley and Son. 12s. 6d. net.
[2] THE LANCET, 1922, i., 420.
[3] Boldyreff: Quarterly Journal of Experimental Physiology, 1914, viii., 1.
[4] Guy's Hospital Reports, 1921, lxxi., 286.
[5] Edin. Med. Jour., 1923, xxx., 265.

The acid-control of the pylorus described by Cannon has been criticised by many workers. Baird, Campbell, and Hern, in their experiments, found that the emptying of the stomach occurred at rates by no means dependent upon the acidity of the contents of the pyloric antrum, and often in the presence of duodenal contents of a reaction definitely acid. The last part of their work deals with the problems of achlorhydria. They found that of 60 normal students examined only one showed this phenomenon when subjected to repeated observations, and close examination of this subject threw doubt on the question of his normality. It is admitted that for any adult the definition of health is almost impossible, and one may question whether the other 59 subjects examined would all have stood the test of searching clinical inquiry in this respect. Large numbers of subjects must still be examined before a final answer to this problem can be given; it remains certain that there are a considerable number of persons with achlorhydria living apparently normal lives. It is in connexion with the ætiology of pernicious anæmia that this subject finds its most immediate interest.

OCCUPATIONAL MORTALITY AND INDUSTRIAL UNREST.

THE student of medical sociology who turns to mortality records for some light upon the recent unrest among locomotive engine-drivers finds himself at a loss. The most recent figures published (samples from which are here given) refer, it is true, to 1910–12, but the comparative figure of the Registrar-General's

Comparative Mortality (England and Wales) in Certain Occupations. (Ages 25–64.)

Occupation.	1890–92.	1900–02.	1910–12.
Agricultural labourer ..	731	621	470
Shipbuilding	836	817	633
Railway engine-drivers and stokers	934	610	536
All males	1155	1000	790
Messengers, porters (not railway and Government) ..	1415	1449	1137
Seamen	1564	1646	1485
Costermongers	1911	2007	1507
Dock labourers	2114	1481	1127

occupational group, "engine-driver, stoker, cleaner" was equally satisfactory in 1900–02 and in 1890–92. At no period of life was the mortality experienced excessive, nor was any constituent cause of death in excess. In the *Statistical Bulletin* of the Metropolitan Life Insurance Company of New York for December, 1923, some statistics of the longevity of "locomotive engineers" are quoted, from which the authors infer that engine-drivers have an expectation of life "about as good as that for the average American male of corresponding age," and remark that the special hazards of the occupation "seem not to reduce his longevity prospect below that of males in the general population." We are rather surprised that the American experience is not more favourable. The group, as we have seen, enjoys in this country one of the lowest rates of mortality of any group, a much lower rate than all occupied and retired males, and an appreciably lower rate than members of the civil service. Calling the rate for all males 100, that for engine-drivers was 68, and for the civil service (clerks and officers) 77. This is hardly surprising, since the duties of the occupation can only be performed by physically select men, so that the rate of mortality is hardly a simple criterion of the salubrity of the occupation itself.

On the other hand, mortality data present real excuse for unrest among dock labourers. This occupational group has always stood high for death-rate; in 1910–12 (the last published records) their mortality was only exceeded (omitting occupational groups with special risks, such as silicosis among tin-miners and metal-grinders, and alcoholism among inn-servants and brewers) by costermongers, seamen, and messengers. Dock labour is not a skilled industry, and the unsuccessful of other trades tend to drift to it, as well as to messengering and costermongering. Here lies a reason for much of the high mortality; but low wages, uncertainty of employment, and conditions of work undoubtedly also contribute their share, for these persons need a better rather than a worse environment than obtains under other occupations. The dock labourer suffers in excess from alcoholic diseases and has a reputation for industrial drinking. The contrast between dock labour, shipbuilding, and agriculture is great, although the weather exposure in each is similar. Reference to the great causes of death which contribute to the total mortality discloses that, although all are high, the death-rates of dock labourers from respiratory diseases are particularly excessive.

THE AFTER-CARE OF THE CANCER PATIENT.

THERE are few more tragic figures in human life than the sufferers from malignant disease who daily present themselves for treatment in our hospitals. Apart from the few fortunate ones, in whom a cure is effected, their days will often be numbered; yet how often are they the most cheerful and courageous of patients. Any schemes for after-care, therefore, which shall make for a less distressing end should have a full measure of our sympathy. In the fourteenth report of the Cicely Northcote Trust (October, 1922–October, 1923), recently issued by the Almoner's Department of St. Thomas's Hospital, a lead is given in this direction. The cancer patient, unlike the phthisic, is often a person of middle age, and therefore often with a young family. Struck down in the years of greatest responsibility he must face the prospect of a long illness with an ominous prognosis. Someone is needed, therefore, who can "stand by," who will help the family to carry on and to make those readjustments to life which such a situation necessarily entails. And here the almoner gets her chance—and her privilege. The patient may return home from hospital with a wound to dress or with an inoperable secondary or recurrent growth to deal with, and in the end there may be a long struggle with secondary infection, hæmorrhage or bedsores.

A small booklet on "How to Nurse Cancer Patients,"[1] by the late matron of Chelsea Infirmary, recently published, well emphasises these points. Reading between the lines we can realise how the district nurse who sees the cancer patient in his last stages must improvise again and again to make bricks without straw in the homes of the poor. The Cicely Northcote Trust report also stresses this point; not only medical attendance, but nursing appliances such as hot-water bottles, bed-pans, air-cushions, draw sheets, mackintosh sheets, unlimited supplies of dressings, &c., are required. Very little imagination is needed to visualise the plight of these cases, and we wonder if the time has not come when no case of malignant disease shall be discharged from hospital without definite provision being made for after-care. Such provision would naturally fall under two heads: (1) Adequate arrangements for watching and following up the successful operation cases in view of the possibilities of recurrence; (2) suitable preparations for the last painful months of the inoperable case who will require careful nursing—preparations which must envisage all the possibilities of sepsis, secondary hæmorrhage, and the like. In these matters we might follow the lead of the after-care workers of maternity, child welfare, and tuberculosis schemes, in which departments much valuable work is now being done. It is possible also that a systematic after-care scheme for patients with malignant disease might ultimately produce useful statistics as to complications and sequelæ, duration of life, and even errors of diagnosis. At present we class all these patients together in one group as cases [with a hopeless prognosis, whereas careful following up might shed a new light on some of these questions. In this matter medical officers of

[1] How to Nurse Cancer Patients. By E. S. Barton, R.R.C. London: The Scientific Press, Ltd. 1s. 3d.

Poor-law institutions could help. Many cases—notably those after colotomy operations—are transferred from the general hospitals to the infirmaries, and some scheme of collaboration through the hospital almoners might be developed. Finally, the following-up process should be correlated with the new statistical and economic researches on causation. In this matter we believe much more use might be made of the almoner's department than is done at present.

THE FUNCTIONS OF MUCOUS SECRETIONS.

THERE have always been arguments and controversy concerning the function of mucous secretions. The case of saliva is particularly interesting; some physiologists regard its function as mechanical, assisting the passage of food down the upper part of the alimentary tract, others hold that the starch-splitting qualities are by far the more important. Unfortunately for the latter view it is well known that diastase will only digest cooked starch, and since animals (and for that matter primitive man) do not have opportunities for cooking their food, it seems that the diastase can have but little function. In an address which we summarised last week Mr. W. Stuart-Low raises the cognate question of the function of the mucous surfaces and secretions of the nose, throat, and ear. He calls attention to the value of visceral secretions in holding up bacteria. The majority of workers will certainly agree with him so far, but they may not be inclined to put so much faith in the purely chemical action of mucin. Mr. Stuart-Low claims that this substance possesses chemical properties which render it specially objectionable to bacteria. It is pointed out that mucin is rich in oxygen and sulphur, and that it contains a glucosamin radicle, properties which, it is suggested, are in a way anti-bacterial. But a large number of other proteins are rich in oxygen, all the higher ones contain glucosamin, and practically every one contains sulphur. Again, the proteins, considered as a group are unreactive, and mucin is no exception to this. Bacteria are cultured on protein media, the majority of which contain an appreciable quantity of gluco-proteins, such as mucin. So far, then, as our present knowledge goes, the functions of mucin are sufficiently explained in Mr. Stuart-Low's other suggestions—namely, that the bacteria are "trapped" by the sticky secretion, and when thus rendered helpless are demolished by phagocytes.

SURRA OF HORSES AND BAYER "205."

Dr. F. K. Kleine's visit to this country, in order to lay his African experiences before the Royal Society of Tropical Medicine (see p. 384), will quicken the general interest in trypanosome diseases and their relief. To Dr. Kleine's own work we shall return later. The present position is well set out in a careful research on the treatment of surra in horses in Java, recently reported[1] by E. Rodenwalt and J. B. Douwes. They remark that the experimental treatment of trypanosome diseases shows an uninterrupted series of disappointments. Drugs which did well in Europe, curing laboratory animals, laboratory infected with laboratory strains of blood parasites, have disappointed expectations when used in the treatment of the natural disease in the tropics. Bayer "205" gave encouraging results in the treatment of dourine in Europe, though obstinate cases were found and some races of the parasite became resistant. However, dourine is not carried by an insect, but rather in a manner comparable with a laboratory infection, so it cannot be taken closely to resemble the tropical infections. The authors have been examining during two years the treatment of surra in horses by Bayer "205" and observe that only their negative results are final, the positive being still liable to further examination. Only those animals are to be considered—e.g., horses—whose trypanosomiasis takes an acute form, others (buffaloes) which have the disease in a chronic form are apt to mislead, for what is judged to be a cure may prove to be only a remission. Horses generally become acutely ill and die in a few weeks. The authors lay stress exclusively on their treatment of naturally infected cases, as many remedies have been known to cure animals artificially infected while failing on the others. They insist on the importance of daily observation of temperature and blood (and that by an expert), for otherwise relapses are missed, and on the duty of keeping the animals throughout the experiment in fly-proof stalls, to avoid dissemination of the infection. Fifty per cent. of horses suffer severely from the injection of Bayer "205," equally if they are healthy or infected, native-born or Australian, and even if the doses are very small, too small to be curative. But the trypanosomes are speedily affected, even in a quarter of an hour, disappearing from the blood in 12 hours, and meanwhile losing their power of reproduction. As the horses varied much in susceptibility they were always treated in pairs. It was concluded that the doses affecting the horse and killing the trypanosomes were unpleasantly close together, so big sterilising doses could not be given, the large dose was 2½ per cent. of the body-weight, small doses were ¼ per cent. of the body-weight every other day till 5 or 7 per cent. had been administered (in 10 per cent. solution). The large dose may kill the horse, the small one is much less effective. Neither does any good if the disease is well established; they are only profitable if the pyrexia is but slight, and there are no parasites to be found in the blood as yet. The disease is so far mastered if the horse does not die at once, but has a relapse after a remission; but relapsing cases are incurable. Ten artificially infected horses, not treated until the disease was well developed, all died. Fourteen naturally infected, all but three died; two are working, one would be, but is too vicious. That a horse is working does not prove it is not a carrier, hence the need for daily controls. Bayer "205" persists longer in the blood than any previous trypanocide, hence its usefulness in prophylaxis. If surra is found among the horses of a regiment the following programme is carried out: (1) Kill all horses seriously ill; (2) treat by injection all animals only slightly affected; (3) kill all relapsing cases; (4) all exposed still healthy animals get a prophylactic injection of ⅔ per cent. of body-weight; (5) horses who become ill are dealt with under (2) or (3); (6) repeat (4) in four weeks' time; (7) buffaloes must also be dealt with; (8) all under treatment are kept in fly-proof stalls. The trypanosomes, if not killed, become resistant within 20 minutes, and are more and more resistant in each succeeding relapse. So the ideal trypanocide is still to seek.

[1] Archiv für Schiffs- und Tropen-Hygiene, vol. xxvii., No. 9.

INSULIN BY THE SKIN AND MOUTH.

THE announcement by the Medical Research Council of a 50 per cent. reduction in the retail price of insulin brings the day nearer when this biological will be readily available for study and research. Recent investigations by Dr. A. Wallgren[1] in Gothenburg would seem to suggest that when insulin is rubbed into the skin, enough of the drug is absorbed to affect appreciably the concentration of sugar in the blood. He experimented with the small tablets, each containing one Toronto unit of insulin, prepared by the Leo firm of chemists in Helsingborg. The tablets were pulverised, and the powder was first suspended in distilled water. This suspension was then incorporated in a little vaselin or lanolin ointment, and was slowly rubbed into the skin for a few minutes after it had been carefully cleaned with ether. The concentration of sugar in the blood was determined by Bang's method before the inunction of insulin, and for six hours after it, at hourly intervals. The persons examined were children between the ages of 1 and 15 years, convalescent from various diseases. They were given no food during these

[1] Upsala Läkareförenings Förhandlingar, 1924, xxix., 57.

tests in order that alimentary influences should not confuse the issue. Control tests were also carried out with lanolin inunction alone, and little or no diminution of the sugar content of the blood in these control cases was observed. As a table showing the influence of insulin inunction in six children clearly proves, insulin is easily absorbed by the intact skin, the action of the insulin, as judged by the concentration of sugar in the blood, being greater in infants than in children of more advanced years. This may be so because the absorptive capacity of the skin declines with years, or because the dose of insulin relative to the weight of the children was comparatively high in the youngest children examined. In the case of an infant only 1 year old, and weighing 9 kilos, the inunction of insulin reduced the concentration of sugar in the blood so effectively that the experiment had to be discontinued prematurely. Before the inunction the concentration of sugar in the blood was 0·094. The corresponding figures for the following six hours were 0·088, 0·073, 0·075, 0·057, 0·055, and 0·049. When this last figure was reached there were signs of a hypoglycæmic reaction, and the infant, who had reacted promptly to the first withdrawals of blood, became more and more indifferent to them. When she was given grape-sugar by the mouth, she at once became brighter and more lively. Experiments on the same lines were also conducted in a case of severe diabetes in a three-year-old child. It was found that the usual morning injection of insulin (2 units) could be satisfactorily replaced by the inunction of 20 units. Dr. Wallgren is inclined to regard these investigations as of speculative rather than of practical value, at any rate for the present. For the percutaneous administration of insulin requires so much of this drug to be effective that the cost of treatment would in most cases be prohibitive. A further disadvantage of the percutaneous route is the comparative inaccuracy of the dosage. But considerable interest attaches to the demonstration of the ability of a hormone to pass through intact skin. In another paper, published by Dr. Ernst Salén,[2] of Sweden, some promising experiments with the oral administration of insulin are recounted. He was unable to confirm the observations of L. B. Winter, who found that when insulin was given by the mouth in an alcoholic solution to rabbits considerable quantities were absorbed in a potent state. But when Dr. Salén gave insulin by the mouth in a suspension of olive oil to three patients suffering from diabetes, he found that in two cases there was an appreciable reduction in the blood-sugar. These and similar investigations afford some grounds for hoping that we may in the near future dispense with the administration of insulin by subcutaneous injection.

WE regret to announce the sudden death, on Sunday, Feb. 17th, of Mr. R. G. P. Lansdown, consulting surgeon to the Bristol General Hospital.

Dr. A. C. O'Sullivan, professor of pathology in Dublin University, died on Feb. 18th from sepsis, contracted a few days before in the course of making a post-mortem examination.

THE anniversary dinner of the Medical Society of London will be held at the Grand Hotel, Trafalgar-square, London, on Wednesday, March 12th, at 7.30 P.M., Dr. Herbert Spencer, the President, in the chair.

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[2] Acta Med. Scand., 1924, lx., fasc. 1.

NEW HOSPITAL AT ALDERLEY EDGE.—Lord Sheffield, on Feb. 13th, opened a new district hospital at Alderley Edge. The hospital is provided with both public and private wards, and was built by funds left by the late Mr. Otto Baerlein, for many years Serbian Consul in Manchester and a resident in Alderley Edge. The cost of building and equipment was about £11,000.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

LIX.—THE TREATMENT OF NEPHRITIS.

I.—General Principles.

THE treatment of nephritis is by no means very satisfactory, and it may be said at once that no drug has any direct beneficial influence on renal lesions. The therapy of renal disease resolves itself into the usual more or less empirical treatment of the various symptoms that may arise; the fundamental lesion itself is unaffected by medicinal measures. While the treatment of symptoms is a simple enough procedure, certain principles underlying the treatment of the disease are still the subject of much controversy and difference of opinion. Though it is quite impossible in the light of our present somewhat limited knowledge to pronounce any definite opinion on certain of the principles advocated in the treatment of renal disease, it is nevertheless clear that physiological considerations may help us in our endeavours to arrive at correct conclusions.

Diet.

The most important question that arises in the treatment of every case of nephritis is that of suitable diet. In the days when physiology was just beginning to explain certain functions of the animal body, it was supposed that protein was partly broken down in the intestine, but that, on absorption, a resynthesis took place, with the result that protein as such was directly passed into the blood. As it was well known that in nephritis protein was excreted by the kidney, the natural deduction was that the less protein given as food, the less work would be thrown on the kidney in excreting this protein. This was the principle underlying the conception which still in large measure prevails, that protein should be given but sparingly in all cases of nephritis. Modern physiology, however, teaches that protein taken as food does not increase directly the protein of the blood, but that food protein is first broken down to the stage of amino-acids in the intestine, and as such is absorbed and circulated in the blood; these amino-acids are picked out of the blood by the various tissues and rebuilt into proteins as required. From this it might be expected that increase in protein food would not increase the amount of protein excreted in the urine in nephritis. Investigation shows that this surmise is correct: the amount of protein excreted in renal disease is not dependent on the amount taken in as food, and no increase or decrease of albuminuria can be brought about by changes in the protein content of the diet. It is therefore clear that no clue as to the amount of protein that should be given in the food can be obtained from an estimation of the amount of protein passed in the urine. On the other hand, it is clear that the more protein taken the greater will be the amount of nitrogenous waste products formed. These products, the chief of which are urea, uric acid, and creatinin, have to be excreted, and in this way their presence may act detrimentally on the kidney, so that in certain conditions limitation of protein may be beneficial.

It should be remembered, however, that there is no proof that protein food is in any way injurious to the kidney, and the usually accepted doctrine that protein is detrimental requires investigation in the light of modern physiological teaching. While it is only common sense to affirm, in the present state of our knowledge, that protein may be injurious in certain cases of advanced renal disease, it is certain that there are numerous cases of nephritis in which the practical withdrawal of protein from the diet does much harm. It is not likely that protein food can produce any injurious effects if the renal con-

dition is such that the kidneys are quite capable of excreting nitrogenous waste products. Frequently certain symptoms of renal involvement are present, but investigation on modern lines shows that there is no interference with the function of excreting waste nitrogenous products. In such patients, protein food may be given with impunity; indeed, these patients frequently improve when given a reasonable amount of protein food, and it is sometimes necessary to include what might be regarded as excessive amounts of protein in the diet. The question of the most suitable diet in any case of nephritis must therefore depend on the state of the kidneys and their power to excrete nitrogenous waste products. If this function is good, protein may be given in whatever amount is considered necessary; if, on the other hand, there is a tendency for the retention of waste products in the blood, it is probably better to limit the amount of nitrogenous food. Everything depends on the nature of the particular case under review, and no general rule can apply to every case. This point will be discussed in greater detail below.

Salt-free Diet.—Many medical men endeavour to restrict the salt intake in all patients suffering from nephritis, but as far as we know at present, there is no sound reason for this procedure unless œdema is prominent. This is the one and only symptom that indicates a diminution in salt intake; the indiscriminate use of a salt-free diet in other cases simply causes inconvenience to the patient and adds greatly to his general discomfort. In many cases of nephritis salt is exceedingly well excreted; when this is not the case, a certain amount is retained in the body. Since it is impossible for the tissue cells to survive if the concentration of salt becomes too great, the body retains water to bring down the concentration to that normally present in the body. Obviously, this mechanism results in the production of œdema. It is not argued, of course, that the sole cause of œdema in nephritis is necessarily salt retention; other factors undoubtedly play a part, but the well-marked diminution of œdema in response to salt-free diet, so often seen in suitable cases, proves that salt retention is, at any rate, frequently a most important actor in the production of œdema in nephritis.

The Blood Pressure.

Attempts to lower the increased blood pressure in chronic nephritis are frequently made, and many methods are used. In my experience no benefit is obtained from such procedures, and in general it would seem that no specific attempt should be made to lower the increased blood pressure of chronic nephritis. This rise of blood pressure undoubtedly serves a purpose, and when it is a secondary symptom dependent on renal change, attempts to lower it may upset the renal excretion. Lowering of the blood pressure by artificial means does not in any way improve the renal function. Indeed, in some patients it would appear as if the increased blood pressure was a most important factor in assisting the diseased renal tissue to perform its function, and when the blood pressure is artificially lowered such patients do not always feel so well. It is often very difficult to affect this raised pressure by therapeutic means, and, on the whole, this is perhaps fortunate for the patient.

Fluid Intake, Œdema, and Diuretics in Nephritis.

It is a common practice to give large amounts of fluid in many cases of nephritis with the idea that the increased flow of urine induced will result in washing out toxic products. Obviously, when œdema is a marked feature, such a procedure can only result in making the condition worse. It is questionable whether large amounts of fluid should ever be given in nephritis. In acute nephritis certainly this practice is contra-indicated, for here we are really dealing with renal cells so extensively damaged that they are for the time being more or less unable to excrete water. No amount of water introduced into the circulation will help to promote renal secretion until the cells recover somewhat, and since in severe cases the body already contains an excessive amount of fluid, the introduction of more fluid simply results in an increase of the œdema. When the renal cells recover and are again able to secrete appreciable amounts of urine, there is practically always more than sufficient fluid in the tissues. The conditions for secretion of urine at this stage are ideal, since the excess of fluid present is practically always associated with more or less increase in the blood pressure; at the same time there is an excessive amount in the blood of urea, which is perhaps the best diuretic we possess. All that is required to produce diuresis, then, is an efficient renal mechanism, and when, therefore, the kidney cells recover, marked diuresis usually takes place, and both fluids and toxins are eliminated. This desirable result, however, cannot be expedited by giving fluid, and there does not appear to be any condition, either in acute or chronic nephritis, in which the introduction of large amounts of fluid into the system is indicated. Indeed, in certain subacute cases when œdema is a prominent feature, reduction of the fluid intake frequently exerts a most beneficial influence. Incidentally, the experience of everyone who has carefully investigated this problem is that the usual diuretics give practically no beneficial result in patients in whom œdema is directly dependent on renal lesions. That marked diuresis frequently follows the use of diuretics in acute nephritis is acknowledged, but since diuresis is the usual outcome in this condition when recovery of the renal cells takes place, it cannot be held to depend on the use of diuretics. It must be remembered that in all severe cases of acute nephritis there is ample diuretic substance—urea—already present in the blood. Contrary, therefore, to what is perhaps the generally accepted opinion, the ordinary diuretics are of little or no value in renal disease, and their use is, with few exceptions, not indicated.

The Use of Alkalies.

In recent years much work has been carried out on so-called acidosis, and since certain features of acidosis are encountered in renal disease, it became the custom some time ago to give alkali in many cases of nephritis. While there is little evidence that the usual small doses of such alkalies as sodium bicarbonate can do any harm when given by mouth, their injection directly into the circulation, in severe conditions of nephritis, is of no value, and indeed sometimes produces alarming results. The particular form of acidosis present in nephritis cannot be counteracted by the use of alkali, since the condition depends on a defective function in the renal substance. The diseased kidney is unable to excrete the excess of alkali, with the result that it is retained in the system, and, like salt, results in the retention of water and an increased œdema. In this connexion it is worth noting that Sellard's simple test for acidosis is of little value in nephritis. Sellard showed that a patient suffering from acidosis could take large amounts of alkali by mouth without the urine becoming alkaline, while the normal individual generally passes an alkaline urine after taking such a comparatively small amount as 5 g. of sodium bicarbonate. Frequently, nephritic patients can take large amounts of sodium bicarbonate without passing an alkaline urine; this, however, merely indicates that the kidney is unable to pass the alkaline sodium bicarbonate into the urine, and provides no evidence whatever of true acidosis. When real acidosis is present the sodium bicarbonate is neutralised by the excess of acid in the body, and so the urine does not become alkaline until the whole of this acid is dealt with. It is because Sellard's test has often been used in nephritis, and the results quoted as indicating acidosis, that the correct interpretation of the results must be insisted on.

HUGH MACLEAN, M.D., D.Sc., M.R.C.P.,
Professor of Medicine, University of London,
St. Thomas's Hospital.

(*To be concluded.*)

Special Articles.

THE WORK OF THE RADIUM INSTITUTE.

THE annual report of the Radium Institute, London, for the year ending Dec. 31st, 1923, has just been issued. We outline here several of the most important features of the report, which deals in particular with radium therapy in diseases of the thyroid, thymus, spleen, and lymphatic system.

Recent Developments in Radium Therapy.

The provision of a limited number of bedrooms in the Institute for the reception of in-patients has proved of very great value. Their existence has rendered possible the carrying out of many surgical procedures which are essential to efficient radium therapy, and, further, it has enabled treatment to be given in a shorter time and with a minimum of fatigue or discomfort. The services of the surgeon are being requisitioned more frequently for the purpose of employing radium in the most effective manner, and recently reported advances in that direction comprise the treatment of laryngeal growths by subhyoid pharyngotomy; and of inoperable cancer of the uterus with extensive infiltration of the broad ligaments, by performing a medium laparotomy and burying the radium tubes in the diseased tissues from the peritoneal surface. Cases of carcinoma of the cardiac end of the œsophagus have also been treated by the introduction of radium tubes through a gastrotomy opening. It appears highly probable that the use of "*surgery of access*" will undergo a steadily progressive development.

The combination of diathermy with radium has, during the past 12 months, yielded some highly successful results in the treatment of carcinoma of the tongue, mouth, tonsils, and fauces, many cases of very advanced type being greatly benefited, the suffering much relieved, and the progress of the disease retarded or arrested. The customary procedure consists of the removal or destruction of the primary focus of the disease by diathermy, excision of the more easily accessible associated lymphatic glands, and a subsequent general radiation of the whole operation area with radium tubes and applicators.

The general trend of radium therapy is in the direction of increase of dose, more especially at the first exposure, and the employment of quantities of radium element varying from 250 to 750 mg., with screening of 2 mm. of lead, and exposure of from 20 to 30 hours' duration, is now by no means unusual in the treatment of such conditions as an extensive mammary cancer, mediastinal growths, lymphosarcoma, lymphadenoma, and lymphatic leukæmia. Patients so treated do experience some degree of systemic disturbance, but it is never very great, and rapidly disappears under appropriate treatment. It is not, however, wise to use such a heavy dose when the radiation is directed chiefly to the abdominal cavity, as recent experimental researches have shown that the mucus-forming cells of the intestines are peculiarly susceptible to gamma rays. The immediate effect of such radiation is a definite but transient increase of activity of the goblet cells, speedily followed by atrophy and degeneration. No mucus being formed the intestinal bacteria are enabled to invade the mucosa, causing its necrosis and desquamation. The bacteria may in some cases penetrate into the blood-stream and give rise to a septicæmia.

Radon.—The use of radon[1] is steadily increasing as its therapeutic value becomes more widely known and appreciated. Advice is freely given to medical practitioners in the treatment of disease with radon apparatus, and if precise information is furnished as to the nature and extent of the disease or growth, a suitable apparatus, correctly screened, with full instructions as to technique and exposure, can usually be forwarded to any address in the British Isles within two or three days. The fact that the therapeutic effect of radon and radium salt apparatus is identical cannot be too strongly emphasised. It is true that radon slowly decays, its initial radioactivity being reduced to one-half in 3·85 days, and to one-fifth in 8·8 days; but this rate of decay never varies, and it is thus a perfectly simple matter to prepare an apparatus, the mean activity of which during a period of 24 hours, would be exactly equivalent to that of a radium salt apparatus of a stated strength. Radon, moreover, has one particular advantage over radium salts, being a gas it is highly compressible, and a curie of radon (the amount of radon in equilibrium with a gramme of radium element) can be contained in a space of only 0·58 c.mm. This property permits of the manufacture of extremely small radon tubes or applicators, possessing a very intense radon activity. Further, radon possesses no intrinsic value, and should a radon applicator be mislaid or destroyed, the only pecuniary loss incurred is the value of the metal container. This enables radon apparatus to be sent on hire or loan to all parts of the United Kingdom, no security or insurance being demanded, as would be the case if radium salt applicators were used.

The Value of Radium in Diseases of the Thyroid.

The normal thyroid gland is but little affected by radium rays, and radium therapy is of doubtful value in the treatment of simple goitres and should never be regarded seriously as an alternative to surgery. In the soft parenchymatous type, however, it may be used with a certain amount of justification, if operative measures have been negatived for any reason.

While in suitable and selected cases of *exophthalmic goitre* the operation of partial thyroidectomy is undoubtedly the procedure offering the best prospects of permanent relief or cure, many patients emphatically refuse operation, and radium treatment is advised.

Prolonged irradiation with the gamma rays often proves most beneficial, especially if there is no vomiting or diarrhœa, and the patient is not emaciated. Flat applicators containing from 70 to 100 mg. of radium element screened with 2 mm. of lead are employed, and a total exposure of from 20 to 30 hours' duration given. The treatment is sometimes followed by a definite exacerbation of all the symptoms, and it seems fair to attribute this to the congestion attendant upon the reaction, causing an increased outflow of the thyroid secretion into the blood-stream. Such exacerbation, however, proves transient, and is usually followed by a gradual but steady and definite improvement in the patient's symptoms and general condition, and this may probably, almost certainly, be ascribed to the action of the rays producing an arrest of the vitality and retardation in the development of actively proliferating cells, thus restoring the output of the cellular secretion more nearly to normal limits. With this there is also associated a fibrosis of the connective tissue of the gland, causing the organ to become firmer and smaller. The patient should be seen at intervals of three months, and the treatment repeated, if necessary, with such modification as may seem advisable.

In advanced and inoperable cases of *malignant goitre* radium treatment should most certainly be adopted. It will often arrest the progress of the disease in a most striking fashion, causing a great reduction in the size of the growth and affording much relief to the symptoms.

The treatment should be carried out by "cross-fire" irradiation with external applicators containing 150 to 250 mg. of radium element, screened with 2 mm. of lead. Exposures of 30 hours' duration repeated at intervals of six weeks are necessary. The employment of radium tubes buried within the growth is strongly to be deprecated, as this procedure is almost inevitably followed by a rapid fungation of the growth through the skin incisions. It is important to preserve the surface of the skin intact as long as possible, as the presence of fungation and ulceration adds greatly to the patient's distress.

[1] In the report of the International Committee on Chemical Elements, 1923, it was advised that the word "radon" should replace the term "radium emanation." The initial activity of all radium emanation apparatus is expressed in millicuries. A millicurie is the amount of emanation in equilibrium with a milligramme of radium element.

When the existence of an enlarged *thymus gland* is suspected a definite diagnosis should be made and treatment carried out by a "cross-fire" radiation of the area with flat applicators containing 50 to 100 mg. radium element screened with 2 mm. of lead should be adopted. The total exposure should be of from 15 to 20 hours' duration, preferably given in three or four equal periods on successive days. The gland rapidly shrinks and a second series of exposures is rarely, if ever, necessary.

Indications for Radium in Enlargement of the Spleen.

Chronic enlargement of the spleen from congestion is met with in hepatic cirrhosis and in chronic cardiac and pulmonary affections. It also occurs in certain constitutional conditions, syphilis, rickets, malaria, and lardaceous disease, but in none of these affections is radium therapy of any practical value. There are, however, three diseases in all of which there is great enlargement of the spleen, and in which radium treatment is indicated, as it rapidly induces a considerable shrinking in the size of the organ with an associated improvement in the patient's general condition.

1. *Splenomegaly—Simple.*—The effect of radium radiation in a case of simple splenomegaly is usually very striking. A spleen which before radiation reaches down into the left iliac fossa rapidly recedes under appropriate dosage, and at the end of six weeks or two months may not be palpable below the costal margin. The radiation of the enlarged organ is best accomplished by means of numerous "half strength" flat surface applicators containing from 200 to 400 mg. of radium element, screened with 2 mm. of lead, the total exposure being of from 20 to 30 hours' duration.

2. *Splenic Anæmia—Banti's Disease.*—In this condition radium usually induces a definite decrease in the size of the spleen, with some slight improvement in the colour index. The disease is, however, a steadily progressive one, and the remission usually proves but temporary, a repetition of the treatment being called for at intervals of from four to six months. Radiation is carried out with "half strength" surface applicators, screened with 2 mm. of lead, and total exposure of from 20 to 30 hours. The amount of radium employed varies with the size of the spleen, but generally quantities of from 100 to 200 mg. of radium element are necessary.

3. *Spleno-Medullary Leukæmia.*—Radium is unquestionably of great value in the treatment of spleno-medullary leukæmia. The immediate result in the improvement of the blood condition is very remarkable. It is often possible to record a definite decrease in the white cell count three days after the termination of the exposure, and this decrease may be steadily maintained for four or five weeks, at the end of which time the number of leucocytes may be reduced to between 20,000–50,000 per cubic millimetre. There is usually, in addition, a concomitant rise in the hæmoglobin content, the anæmia is lessened, and the tendency to hæmorrhages diminished. The patient's general condition is also improved, appetite and strength returning. If the disease is of comparatively recent origin, there is a great decrease in the size of the spleen, the organ rapidly shrinking to almost normal dimensions, and permitting the performance of splenectomy, if this be considered desirable. If the condition is of long standing, and the spleen has previously been subjected to much treatment with X rays, but little actual decrease in its size is likely to be effected by radium, as extensive fibrosis of the splenic interstitial tissue will have taken place. The radiation employed in the treatment of spleno-medullary leukæmia should be wholly of the gamma type. "Half strength" flat surface applicators, screened with 2 mm. of lead, are used, and containing from 100 to 400 mg. of radium element according to size of the spleen. The total radiation should be of from 20 to 30 hours, and, when possible, this should be spaced over two or three days, as by so doing the possibility of inducing some slight systemic disturbance is much lessened. The patients need to be kept under careful observation and periodic examinations of the blood should be made. A steady progressive increase in the leucocyte count should be regarded as an indication for further radium treatment. This is, however, rarely necessary at lesser intervals than four months, and in favourable cases a period of six or nine months may elapse between exposures. In very advanced cases accompanied by severe anæmia transfusion of blood may advantageously be employed between the radium treatments.

Effects of Radium on Certain Lymphatic Affections.

The action of radium rays in the treatment of *tuberculous adenitis* is probably of a two-fold character. Numerous experiments have been made with regard to the action of radium rays on tubercle bacilli, and it has been found that exposures of at least 100 hours' duration with full strength applicators unscreened are necessary to produce a lethal effect. Such exposures are outside the range of practical therapy, and for this reason radium irradiation cannot be used for the distinct purpose of killing tubercle bacilli. It has, however, been noted that cultures of tubercle bacilli which have received a relatively short irradiation have their vitality greatly inhibited, and that sub-cultures made from them grow much more slowly than controls, and exhibit numerous involution forms. It is probable, therefore, that the radiation of tuberculous glands weakens the vitality of the contained tubercle bacilli and enables their destruction to be more readily accomplished by the phagocytic cells. Further, the radium irradiation acts as a stimulus to the production of fibroblasts with the consequent development of an encircling, constricting, and protective fibrosis

In the early stages of the disease, when the glands are relatively small, discrete, and but little tender, appropriate radium treatment will usually speedily reduce their size and number and arrest the progress of the disease. If caseation or suppuration has occurred, it is, however, imperative that before radium treatment be given the contents of the glands should be removed, either by aspiration or free incision and drainage. Some judgment must be exercised in the treatment of tuberculous adenitis, and the strength of apparatus, screening, and length of exposure modified according to the nature of the individual case. When the covering skin is not implicated, "half strength" applicators, screened with 2 mm. of lead, and exposures of from 20 to 30 hours' duration give the best results; but when chronic sinuses exist and the skin is infiltrated or ulcerated, screening of 1 mm. of silver or 0·1 mm. of lead is preferable, the length of the exposures being shortened accordingly.

Lymphadenoma usually exhibits an exceedingly favourable response to radium therapy, more especially when the superficial glands only are affected and no enlargement of the spleen, liver, or mesenteric glands is appreciable.

The position of the enlarged glands generally renders the application of "cross-fire" radiation practicable, and if this method of treatment be conducted with suitable sized "half strength" applicators, screened with 2 mm. of lead, and exposures of 20 to 30 hours' duration, the glands rapidly diminish in size and number, this effect being often clearly perceptible to the patients themselves within a week of the exposures. The duration of the remission varies very widely. In some cases the disease will remain quiescent for 12, 15, or 18 months, in others a repetition of the treatment may be found necessary at intervals of six months, but none the less radium treatment is to be advocated, as it will prolong the patient's life considerably, and postpone the appearance of a secondary anæmia and its accompanying symptoms.

It is in the treatment of *lympho-sarcomata* that the most spectacular results of radium therapy are to be seen. The lympho-sarcoma cell is peculiarly susceptible to gamma radiation and its degeneration rapidly occurs. The rapid degeneration and absorption of the lympho-sarcomatous cells, however, necessarily produces an auto-toxæmia, and the systemic disturbance is generally considerable, sickness, lassitude, headache, and a rise of temperature being pronounced features.

The patient should be kept strictly at rest, and laxatives and diuretics judiciously administered, until the symptoms have subsided. It is not necessary or advisable to treat lympho-sarcomata by the burying of radium tubes in the substance of the growths. The tumours exhibit a great tendency to fungation when once any breach of the covering skin has occurred, and for this reason the surface should be kept intact as long as is possible. "Cross-fire" radiation will do all that is required, and it is justifiable, in view of the extreme malignancy of the disease, to use a very large quantity of radium—400 to 700 mg. of radium element, screened with 2 mm. of lead, and a total exposure of 30 hours have been employed in some extreme cases with most gratifying results.

Radium treatment is very effective in improving the condition of the blood in *lymphatic leukæmia*. The lymphocyte is probably, almost certainly, the most susceptible of all cells to radium, and for this reason radiation of the enlarged glands is speedily followed by a very definite decrease in the total number and percentage proportion of the lymphocytes. With this fall there is usually associated an improvement in the general symptoms, and the patient's health is decidedly benefited. It is, however, extremely difficult to predict how long the improvement will last. In a few cases the disease will remain quiescent for a year or 18 months, but, as a general rule, indications of a relapse appear in between four and six months, and a repetition of the treatment becomes imperative. The ultimate prognosis is bad, but the adoption of radium treatment usually effects a considerable prolongation of the patient's life.

Treatment is administered by means of suitable sized "half strength" applicators, screened with 2 mm. of lead, and applied in contact with the surface of the affected glands. The total quantity of radium used is dependent upon the number and size of the glands treated, but generally amounts of between 100 and 300 mg. radium element will suffice. The total exposure should be of from 24 to 30 hours' duration.

Secondary Tumours.

The treatment of *secondary malignant growths of the lymphatic glands* is mainly surgical, most operations for the treatment of malignant disease being planned on a scale which provides for a wide removal of the associated lymphatics. In many cases, however, radium treatment is employed as an adjunct to surgery, a prolonged screened radiation being given over a wide surrounding area, with the two-fold object of bringing about the degeneration of any scattered or isolated foci of the disease, and of arresting the permeation of malignant cells through the lymphatics. When the removal by dissection of malignant glands is impossible or inadvisable, radium treatment may be adopted, as it will often cause a considerable diminution in their size and arrest the spread of the infection to neighbouring glands. When the masses are superficial, and in easily accessible situations, treatment with buried radium tubes, screened with 1·0 mm. of silver or 0·3 mm. of platinum, is to be advocated. When deeply situated, or attached to important structures, blood-vessels, or nerves, the prolonged screened radiation from "full strength" applicators is to be preferred.

It is impossible to lay down any hard-and-fast rule as to dosage; the amount of radium used, screening employed, and exposure given having to be adjusted to the requirements of the case. Speaking in general terms, however, when buried tubes are used the exposure should vary from 18 to 24 hours. When prolonged radiation from external applicators is adopted the screening should be 2 mm. of lead and the total exposure of from 20 to 30 hours. If benefit result, the treatment may be repeated at intervals of five to six weeks.

CHANGING FACTORY CONDITIONS.

III.—PROBABLE FUTURE DEVELOPMENTS.[1]

IN the welter of events and of emotions in which we have lived since the closing days of July, 1914, it has been difficult to say what would be lasting and what was merely passing, in relation to industry in particular as in relation to all movements of civilisation. Since the armistice we have had abnormal trade fluctuations. The colossal happenings of these years have bred new hopes, passing sometimes into sheer extravagances, as to industrial possibilities; and by a natural revulsion of feeling, many have been carried to the opposite extremes of reaction or despair. There are many signs now of a settling down to a less unstable state of affairs, and to reasonable ambitions and projects; and it is not entirely rash to forecast likely developments both of legislation and of administration, or to attempt to estimate the attitude and action of those engaged in industry, whether employers or employed.

General Need for New Legislation.

In the first place it is generally expected that a new and comprehensive Factory Bill will be brought before Parliament at the first good opportunity. Twenty years form a long period, especially when they are years in which experience has grown and views have changed. The Factory Act of 1901 no longer seems adequate.

One of the first things to consider in connexion with any new Factory Act should be whether there are any new classes of workers to be brought within its scope. At present warehousemen have very little protection; and clerks have none at all, beyond that which the ordinary by-laws as to sanitation impose upon any building used by human beings. It is notorious that both warehouses and offices can be most unwholesome places to work in. Protection should certainly be extended to both clerks and warehousemen, though it is not at all sure that it would best be done by widening the scope of the Factory Acts to include them, or whether such inclusion would be welcome to those who conduct office business. What is important is that the occasion of the introduction of a new Factory Bill should be taken to review the protection of all workers. Our industrial legislation has grown up piecemeal as different abuses have been perceived or different classes of workers have attracted attention and sympathy; the time has come to build more systematically. There is no reason why a man who paints the bottom of a ship or a railway bridge should come under regulations intended to minimise the danger of lead poisoning whilst a man who paints a house does not. There is no reason for maintaining any longer the historic distinction between textile and non-textile factories. And there ought to be a frank abandonment of the old idea, half abandoned in practice but still leaving its traces all over our industrial legislation, that men do not need protection against industrial evils. The most glaring example is that of hours; men may, and sometimes do, work for terribly long periods at a stretch, notably at the docks. The existing Factory Acts, and the regulations drawn up under them, should be scrutinised to see which distinctions made in conditions imposed as to men and as to women are based on genuine requirements of different sexes, and which are survivals of the old notion that the State should not interfere with the employment of adult men. If it should be objected still that men are strong enough to force better conditions by trade-union action, whenever they really desire them, the answer surely is that their health and safety do not concern themselves alone but that the whole community has an interest in them. If from neglect of proper precautions the health of men in any industry, or of some of them, is injured, it is extremely likely that sooner or later they, or members of their families, will become a burden upon the community.

The Requirements of a New Factory Act.

One of the requirements of a new Factory Act would certainly be adequate lighting in all factories and workshops. And not only adequate lighting but *suitable* lighting, without dazzle or glare or flicker. The Departmental Committee on lighting reported very fully in 1915 and again in 1921, and it called attention to the legislation of foreign countries in this matter. There should be no great difficulty here; the main question would be to settle what should go into the Act itself, and what should be left to the Home Secretary to prescribe by regulation for the various trades and processes. The Departmental Committee recommended that the illumination in an ordinary workroom should be not less than 0·25 foot-candle on a horizontal plane at floor level; that

[1] The previous articles in this series appeared in THE LANCET of Feb. 9th and 16th respectively.

in other parts of factories or workshops it should be not less than 0·1 foot-candle; and in yards, approaches, and so on, not less than 0·05 foot-candle. In the case of iron foundries, in which the accident rate has been very high, they recommended an illumination of not less than 0·4 foot-candle. There is no great difficulty in measuring illumination by a photometer, and there is foreign experience to show that such definite standards are practicable. The gain to the workers both in health and in safety should be considerable.

Another requirement is the regulation of weight-lifting. Strains and ruptures are only too common among men, notably at the docks. It was the frequent occurrence of hernia among certain classes of workers at Bournville which led to the provision by the firm of special gymnastic training and instruction in weight-carrying, but few firms are so careful of their workers' welfare as Messrs. Cadbury. The bad effects of lifting and carrying heavy weights show themselves more often in general fatigue and over-strain than in definite accidents; as the Departmental Committee on Accidents phrased it, "it is a matter of health rather than of safety." The subject has received attention for at least 25 years past, but not much has been done. Some small protection is afforded by the law to women and young persons; in the case of the latter the certifying surgeons can attach conditions to the certificate of fitness; and both women and young persons are excluded from very heavy work in the pottery industry and in one or two other industries. But only the fringe of the evil has been touched. It must be admitted that legislation as to weight-lifting and weight-carrying would not be easy to enforce.

Further, a new Act should require the proper spacing of machinery. It should substitute also the "safeguarding" of machinery for the present requirements of "fencing" and "guarding"; the former term is wider and would cover precautions which do not come under either of the latter heads, such as provision of automatic feeding arrangements. A clause is also wanted requiring the maintenance in good condition, both as regards repair and cleanliness, of all floors, passages, and stairways. Whether a new Factory Act should attempt to regulate the manufacture of machinery is more controversial; there would be difficulties connected with the import and export of machinery, and perhaps it is a matter which will have to wait for international action.

It was the distinctive feature of the Police, Factories, &c. (Miscellaneous Provisions), Act of 1916 that it gave the Home Secretary power to prescribe welfare conditions in industries which were not technically "dangerous." Those who frame a new Act will have to consider carefully what powers of this kind they want to allow. Is there any reason why the provision of hot water for washing purposes should not be made compulsory on all factories and workshops and for every kind of worker? It seems a very elementary hygienic need.

The present legal enactments are nowhere more thoroughly out of date than in provisions as to hours. They still allow a 10½-hour day and a 60-hour week to women and young persons in non-textile factories. (There are a good many exceptions and special provisions for special industries, but that is the broad rule.) Industrial practice is far away from what is allowed, and a 48-hour week or a 44-hour week are most commonly worked to-day. But they should not be left to the power of the trade-unions to enforce or to the goodwill and the good sense of the employers to allow. The community should register its unwillingness to tolerate long hours. Moreover, this country ought to ratify the first convention of the first meeting of the International Labour Organisation of the League of Nations, which specified an eight-hour day and 48-hour week as a normal legal maximum.

International Organisation: the Power of Research.

Industrial legislation and administration in this country, and in all other civilised countries, are likely to be profoundly affected by the new International Labour Organisation, unless indeed the League of Nations fails to establish itself—a contingency which is better not contemplated. The steady comparison of the legislation of different countries is bound to result in levelling up; each country will doubtless be anxious to press upon other countries the adoption of restrictions which they have placed upon their own manufacturers. Concerted action should also make possible legislation in some directions in which the separate nations have feared to move because of competition; there have been one or two conspicuous examples in the past of what is possible to united action, notably the proscription of white phosphorus and the prohibition of night work of women; and now with properly constituted and permanent machinery much more should be achieved. We must reckon, however, with the possibility that the existence of the International Labour Organisation may act also to some extent as a brake; nations may not be quite so ready to make experiments in advance of other nations, and the opponents of innovation will be able to suggest, with rather more case, that we ought to wait for other countries to take action also.

It is impossible to over-stress the importance of research and the benefits which might accrue to the workers in industry if money were spent more freely on it. It is encouraging to note, as the Chief Inspector of Factories notes in a recent annual report, that trade associations are spending a good deal more in this direction than in the past. There is also the important work of the Medical Research Council, which might, of course, be multiplied many times with advantage. The coöperation of medical men and of industrial chemists has accomplished much in the past, and there is vastly more which it is likely to achieve. A very valuable sphere of research just at present is the causation of dermatitis in its many forms. Sugar-workers, oil-workers, women who peel oranges, men who handle box-wood, and many others, are liable to affections of the skin, which may be more annoying than serious, but which may in some cases have very serious consequences. It is important, and not always easy, to discover exactly which volatile oil or other ingredient is the cause of the mischief and what the precise action is. Until that is known, precautionary measures may either fail or they may be unnecessarily cumbersome and vexatious. There is also much experiment still needed on substitutes for dangerous materials. Phosphorus poisoning has disappeared, or almost so, not because of elaborate regulations hedging its use, but because it was found possible to prohibit altogether the use of white phosphorus. In the same way it would do more for the health of certain classes of workers—e.g., coach-painters and house-painters—if the use of lead in paint could be prohibited: but there is still a good deal of work to be done before we can tell definitely to what extent zinc compounds or other substances can replace lead compounds and give as good service. Along all such lines research undertaken in different countries would have the advantage of pooling varying experiences of the troubles and varying methods of meeting them.

The same may be said of ventilation. Here, where there is distinct room for great reform, there seems to be a shortage of men with expert knowledge. The removal of steam from dyeing sheds is often a difficulty as to which employers would welcome advice. Great progress has been made of recent years in the removal of dust and fumes, and there is reason to believe that we are on the threshold of further improvements of far-reaching effect. Dr. J. S. Owens's Dust Counter,[2] which enables us to take an exact measure of the solid impurities in the air, may well make a revolution in the health of some of the grinding trades. The difficulty here has been to make both employers and workpeople realise the dangers arising from the presence in the atmosphere of minute and invisible particles of silica. Because no

[2] THE LANCET Supplement on Atmospheric Pollution, June 13th, 1919.

dust could be seen, they assumed that there was no dust to do any harm. But it is precisely the invisible particles of silica which penetrate to the lungs and cause fibrosis. It is now possible, without excessive difficulty, to demonstrate the presence of injurious dust in a room which appears to be dustless, and to give a reasonably exact account of its quantity and composition.

The Need for Standards.

Attention should be drawn to the growing requirement of exact measurements in industrial legislation. Subjective standards such as "adequate," "reasonable," "suitable," are being replaced in many directions by precise objective standards. Examples of this are to be found in the Cotton Cloth Factories Acts, with their standards of humidity measured by hygrometers, in the regulations for wool-sorting which prescribe the velocity of exhaust draught for various purposes, in the regulations for spinning and weaving flax which fix a minimum permitted temperature. The recommendations of the Departmental Committee on Lighting are another case in point. Perhaps one of the weakest places in our system of industrial regulation is the lack of standards of competence for men who are placed in responsible positions. The Coal Mines Acts require that managers and other officials of coal-mines shall have passed examinations and shall hold certificates that they are fitted for their work. Similar safeguards would be very useful in many other industries. There is nothing at present to guarantee that a man who undertakes the responsibilities of an industrial enterprise has the technical knowledge necessary for his task. There have been cases of collapse of buildings in the last year or so where it was clear that structural alterations, or alterations in use, were made by men who did not understand their work. One disastrous explosion not long ago was obviously due to the same cause. The health and safety of the workers ought not to be jeopardised in this way. The chief difficulty at present is the lack of recognised and well-graded diplomas or other guarantees of competence in the majority of industries.

The General Message.

The greatest progress in industrial welfare is to be made, not in reducing the diseases or the dangers special to some of the more objectionable processes, but in raising the standard of health and well-being of the ordinary worker at ordinary jobs. Even in the case of the specific industrial diseases, half the battle has been to get the ordinary rules of health observed. It was not simply lead poisoning which caused such a huge sickness and fatality list 20, 30, 40 years back; it was the exposure to lead of men and women, often of children, who were underfed, over-tired, and ignorant of many of the common decencies of life. The higher standards of life generally have done a great deal, quite apart from the effects of special regulations, to reduce industrial disease.

The use of hot water, care of the teeth, more frequent change of clothing, shorter hours, more and better food, all these have contributed to the rising standard of health. Town-planning is another new factor which is likely to make a tremendous difference to the lives of the industrial population of the next generation and perhaps still more of the next generation but one. The community to-day has a new collective conscience and a new collective imagination, employers are alive to their responsibilities to their workers as they were not before the war; the workers themselves are better fed, more intelligent, and they are claiming and getting a larger share in shaping the conditions under which they work. Regulations, research, experiment, propaganda, these are only the means to a desired end; and they are only likely to be efficacious in so far as the end is clearly conceived and really desired by a large number of persons, and especially by those chiefly concerned, the organisers of industry and the workers themselves. And where the ends are desired the means will be found. The most encouraging sign of our time is not the technical advance, though that is of high importance, but the new conception of industrial life as a thing which might be, and should be, healthy and educative and a good thing in itself.

THE IRISH MEDICAL COMMITTEE.

(FROM OUR DUBLIN CORRESPONDENT.)

FOR some years past the organisation of the Irish medical profession has been very defective, and medical men have seemed to be without interest in any medico-political matter. It looks, however, as if this period of inertia were nearing an end, if one may judge from proceedings of the Irish Medical Committee which sat on Feb. 13th.

The meeting had been summoned to consider the proposal of the Insurance Commission to reduce the payment for certification under the National Health Insurance Acts, and the intention of the Government to appoint a Committee of Inquiry into the public medical services of the Free State. As will be seen from the appended resolutions, the Irish Medical Committee only agreed to accept the revised rate of payment for certification for a limited period. It has also asked the Government that, in accordance with the precedent of the appointment of the Irish Public Health Council in 1919, the Irish Medical Committee should nominate some of the persons to act on the Committee of Inquiry. The Irish Medical Committee also considered the necessity for a thorough organisation of the medical profession throughout the Free State. Arrangements are to be made for the signing of pledges of all medical practitioners to bind themselves to act together in any emergency that may arise to threaten their interests.

The following is the series of resolutions adopted by the meeting:—

1. That the Irish Medical Committee, on behalf of the Irish medical profession, strongly protests against the reduction of the remuneration for medical certification under the Insurance Act; that the Committee only agrees to accept the terms now offered by the Irish Insurance Commission until August 31st next.

2. That pending the result of the proposed Committee of Inquiry, outlined in the letter of the Chairman of the Irish Insurance Commission, the profession be organised thoroughly in each county in Ireland; that a medical organiser be appointed forthwith and, to meet the expenses of his appointment, &c., a levy of £2 be made upon each member of the profession in Ireland—the levy to be voluntary in the case of those members of the profession who are already subscribers *to both medical organisations in Ireland.*

3. That in the event of the report of the Committee of Inquiry being either unsatisfactory or the Dail refusing to enact medical legislation providing efficient medical services for the people and on terms acceptable to the profession, the Committee recommends that a delegates' meeting be summoned to consider the advisability of withdrawing from the public medical services.

4. That the details of organisation such as the signing of pledges, arrangement for making the levy, &c., be left in the hands of the Executive Committee appointed by the Irish Medical Committee at its meetings held on June 20th, 1923, and Feb. 13th, 1924.

5. That the scales of salaries adopted by the profession in Great Britain for whole-time medical officers, tuberculosis officers, medical school inspectors, &c., be applicable to Ireland.

6. Arising out of Sir Joseph Glynn's letter of Dec. 27th, 1923, the Minister of Finance be requested to invite the Irish Medical Committee, in accordance with custom, to nominate representatives of the medical profession in the Free State to act on the proposed Committee of Inquiry.

7. That the Irish Medical Committee is of opinion that in the best interests of the medical profession the medical schools and clinical hospitals should arrange for a short course of professional ethics for their senior students.

Finally, the Executive Committee was instructed to arrange for a deputation to wait on the Minister of Finance with regard to the taxation of motor-cars used by medical practitioners.

Correspondence.

"Audi alteram partem."

IN HONOUR OF DR. BRACKENBURY.

To the Editor of THE LANCET.

SIR,—There has been a very widely expressed desire that the eminent services of Dr. H. B. Brackenbury to the medical profession should be recognised, having regard particularly to his recent most useful and brilliant work in preparing and presenting the case of the insurance practitioner before the Court of Inquiry. Steps are already being taken to approach insurance practitioners through their panel committees, as it is thought that insurance practitioners as such would desire to have a special opportunity of expressing their gratitude. But our correspondence and conversations with many colleagues show that numerous doctors having no connexion with insurance practice would be glad of an opportunity of showing their belief that Dr. Brackenbury's services for many years past have been of great value to the profession as a whole. They consider that Dr. Brackenbury's recent advocacy and conduct of the case of the insurance practitioner have been such as to enhance very considerably the reputation, influence, and prestige of the medical profession. A large and influential committee is now being formed, and an opportunity will shortly be given to those who wish to join in a well-earned tribute to one who has rendered unique services to his profession.

We are, Sir, yours faithfully,

J. F. ALLAN (Bradford).
T. RIDLEY BAILEY (Bilston).
H. S. BEADLES (Romford).
A. CLARKE BEGG (Swansea).
R. A. BOLAM (Newcastle-on-Tyne).
J. W. BONE (Luton).
H. C. BRISTOWE (Wrington).
H. J. CARDALE (London).
L. J. CARROLL (Bradford).
H. GUY DAIN (Birmingham).
J. SINGLETON DARLING (Lurgan, Co. Armagh).
HOWARD DAVIES (Pontypridd).
C. E. DOUGLAS (Cupar, Fife).
J. D'EWART (Manchester).
W. MCADAM ECCLES (London).
C. E. S. FLEMMING (Bradford-on-Avon).
A. W. FORBES (Sheffield).
E. R. FOTHERGILL (Hove).
G. G. GENGE (Croydon).
T. D. GREENLEES (St. Leonards).
R. HARDING (Kington).
N. BISHOP HARMAN (London).
J. J. HEALY (Llanelly).
R. WALLACE HENRY (Leicester).
E. K. LE FLEMING (Wimborne).
G. AINSLIE JOHNSTON (Ambleside).
ARTHUR T. JONES (Mountain Ash).
B. M. LEWIS (Pontypridd).
E. LEWYS-LLOYD (Towyn).
T. WOOD LOCKET (Westbury).
RICHARD LUCE (Derby).
ARNOLD LYNDON (Hindhead).
PETER MACDONALD (York).
J. MCGREGOR-ROBERTSON (Glasgow).
S. MORTON MACKENZIE (Dorking).
A. MANKNELL (Bradford).
E. W. G. MASTERMAN (Camberwell).
H. MILBANK-SMITH (Worthing).
D. NAUNTON MORGAN (Gilfach Goch).
S. GLANVILLE MORRIS (Mardy).
H. F. OLDHAM (Morecambe).
E. G. D. PINEO (Langford, near Bristol).
F. RADCLIFFE (Oldham).
J. W. F. RAIT (Radlett).
J. MORGAN REES (Pontypridd).
HERBERT SHACKLETON (Bradford).
D. A. SHEAHAN (Portsmouth).
W. MUIR SMITH (Eastbourne).
A. TENNYSON SMITH (Orpington).
H. S. SOUTTAR (London).
E. A. STARLING (Tunbridge Wells).
W. E. THOMAS (Ystrad Rhondda).
A. E. TUNSTALL (Bradford).
W. N. WEST WATSON (Bradford).
E. ROYSTON WOODROOFE (Bradford).

Communications from those who desire to join the committee or have any suggestions to offer as to the nature of the testimonial may be directed to any of the above, c/o the Medical Secretary, British Medical Association, 429, Strand, London, W.C. 2.

Feb. 18th, 1924.

THE POSITION OF PSYCHO-ANALYSTS.

To the Editor of THE LANCET.

SIR,—Some aspects of the recent development of clinical psychology seem to call for serious attention. There are medical men of repute and academic standing who practise psycho-analysis or, without practising it, regard it as containing a valuable contribution to medical knowledge. Others have adopted it as a specialty without that arduous apprenticeship which should precede specialism, and there is an uncertain number of lay analysts who make no pretence to medical knowledge. We see the daily press giving prominence to denunciations of psycho-analysis by members of our own profession, and that this takes place without protest or disclaimer indicates a sentiment which regards our psycho-analytical colleagues as without the law. Though within the narrower circle of professional discussion we no longer hear demands that psycho-analysis should be suppressed, and the tone of its opponents is more moderate than it was a few years ago, yet feeling is still so strong that some degree of courage would be required for an aspirant to professional advancement to announce his belief in the doctrine. This state of affairs has precedents in the history of medicine, and it is possible that medical history is in the making without our recognising the process.

When it is considered that the theory is now nearly thirty years old, that it has met with opposition as forcible as any in the history of scientific controversy, and that its supporters are nevertheless becoming more numerous both within and without our profession, it is plain that we are dealing with no ephemeral cult but with something possessed of strong powers of survival. It is to be noted, too, that its most conspicuous opponents are men of ripe or even advanced years, and though for a new theory to be strenuously opposed is no hall-mark of soundness, yet in other respects than this the parallel still holds good, and the comparison of Freud with Harvey and Darwin, seriously advanced by his admirers and derided by his opponents, may ultimately stand confirmed. It has been hitherto assumed that all mental processes are conscious; in fact, this assumption is given axiomatic validity and used as an a priori argument to dismiss the whole theory of the unconscious, and the discovery of its invalidity will make Freud's main theory, if ultimately incorporated with our scientific principles, a landmark in the advance of knowledge, and for the very reason that it overturns the universal assumption.

But its clinical applications are our more immediate concern, and it must not be overlooked that the theory has been postulated, not for its own sake, but as a means of resuming, in convenient form, observations which many responsible medical men claim to have confirmed. Psycho-analysis is claimed to provide a psycho-pathology of mental disorders, particularly of those psycho-neurotic troubles that have been a reproach to medicine and the hunting ground of miracle-workers and charlatans. In the heat of controversy it is not likely that its cures can be properly adjudged, but, in spite of alarmist accounts, it probably has fewer failures to its discredit, in the shape of suicide or insanity, than has the rest-cure for neurasthenia. One can hardly understand why psycho-analysis, if its good results are non-existent and its methods are based upon delusion, should not be allowed to die a natural death without undue fuss or attention. If, however, it stands the test of time it should greatly enrich clinical medicine and benefit a group of sufferers for whom orthodox therapy offers but little. Meanwhile we must avoid an attitude which may intimidate honest workers, especially younger men who may fear that their careers would be prejudiced

if they attempted, by clinical investigation, to establish or confute the important principles involved in this controversy. And we must take care lest we afford another target for the gibe that mankind learns nothing from history.—I am, Sir, yours faithfully,

Feb. 13th. 1924. A TEACHER.

ELECTRONIC REACTIONS OF ABRAMS.

To the Editor of THE LANCET.

SIR,—In adding my contribution to the discussion on E.R.A. I would first state my position. I was asked to proceed to San Francisco to investigate the question by a layman, who felt that it would be an act of philanthropy if Abrams's claims were well founded, to put at the disposal of the medical profession for use among the poor and for research the armamentarium required. It was not surprising to me that many medical friends deprecated the prospective waste of time, and one of my most respected quondam teachers—and subsequent colleague—implored me not to bring discredit on the Cambridge School by running off the rails. My reply was that only by an unbiased attempt to sift the wheat from the chaff could one justify oneself scientifically. But even yet I asked myself whether I possessed the necessary knowledge of higher physics to make satisfactory critical observations or the necessary capacity for critical expression of the truth. My thoughts recurred to Sir Thomas Browne (Religio Medici):—

"Every man is not a proper champion of the truth nor fit to take up the gauntlet in the cause of verity; many, from the ignorance of these maxims, and an inconsiderate zeal unto truth, have too rashly charged the troops of error, and remain as trophies unto the enemies of truth."

Being pressed, I accepted the mission, and set myself to follow the following lines of thought:—

(1) Did something happen, palpable, tangible, audible at the moment that the "diagnosis" was being made?

(2) If so, could this something be correlated (with any kind of constancy) with any normal or abnormal quality or function of a patient which might be or have been empirically tabulated?

(3) Was there any evidence that in the treatment given the patient derived benefit not reasonably to be attributed to suggestion?

I realised the possibility of Abrams's facts being correct while his explanations were faulty. But I reckoned without my hosts (Abrams and his followers). The first difficulty I experienced reminded me of the dictum of Hobbes in the "Leviathan": "Words are wise men's counters, they do but reckon by them; but they are the money of fools." It was clear that with the best will on my part I was unable to get into touch with their *minds*. To my questions the answers appeared to me to be conscious, or (more often) unconscious, camouflage. Categories were mingled in a way which satisfied me that it was a disability and not malice-aforethought which inhibited their logic. One enthusiast in reply to my comment that he was not logical, said: "Don't you realise, doctor, that this transcends logic." I could only bow.

I know that I shall be held guilty of violating the spirit of the old motto, "De Mortuis," in expressing an opinion (which is only my opinion and therefore lacks evidence) that the one worker who *consciously* made the *suggestio falsi* or the *suppressio veri* was Abrams himself. Of the other inquirers and practitioners, some were enthusiastic optimists to whom the wish was father to the thought, while some were men of scientific mind honestly trying (and hoping) to find enough evidence to support their actions. At least one of these told me with a sad heart that he was being forced to the conclusion that, though he still felt something did happen with the "box," he was totally unable to verify any correlation with any demonstrable pathological states—in other words, that he found himself unsatisfied that his diagnoses had any meaning.

Before approaching the magician's castle I was warned that I should find torpedo nets, in the shape of banter, irritability, and verbosity spread out all round him to fend off the direct question. This I found to be so. He received me courteously, but was entirely intolerant of any analysis of his ex cathedra statements. In one case, which appeared to be a typical scirrhous carcinoma of the breast about to fungate, he stated that his machine gave "no carcinoma reaction, sarcoma reaction," and, turning to me, said, "we treat these cases in the orthodox manner," and then told the patient she would be given a little "burning" treatment which would cause her no discomfort. On inquiry I was told, "Oh, we bake these!" but I was not enlightened as to the technique. I then asked if by sarcoma he meant a quickly-growing highly-cellular growth with very little intercellular stroma, to which he replied, "Oh, I use the term in a rather more general sense than that!"

I told him that, for me, a most helpful means of estimating the question of his good faith (apart from any success in diagnosis) would be the historical method of learning what led him over the enormous gap between his first recognition of his "reflexes" and the conception of the "box." He entirely avoided this line of inquiry. Asked if he regarded the phenomena as electrical, he said he did not know, and excused the use of the terms electron, "ohmage," &c., on the ground that "you must have some terms for the purpose of description." I became satisfied that he had no first-hand knowledge of electrophysics at all, which opinion was expressed (from a study of his publications) by the great physicist, Dr. Millikan, the American Nobel prizeman, in a paper before the Los Angeles Medical Society, when he said "it is not mediæval but prehistoric."

Now for a few words about the machines. While not myself qualified to dogmatise upon the possibility of the creation or modification of any physical "influences" upon the patient, one can state that the diagnostic box is in fact composed of a series of rheostats of small and variable resistance, which resistance does roughly correspond in units to the figures marked outside. In so far as an electrical current from without or a difference of potential occurring within the limits of the subject's body required that amount of resistance to get a particular result, it is at least conceivable that *something* might be measured; but in so far as statements are made as to rates of electronic vibration being "let through" it is so much verbose "flapdoodle."

As regards the oscilloclast, for treatment, I cannot affirm or deny that it has some physical influence, any more than I can affirm or deny that the laying-on of hands or extreme unction can have a physical (as opposed to a symbolical or suggestive effect), but it is quite clear that no one has yet been able to show by any method of physical measurement or demonstration that such occurs. We have, of course, all been told of cases which have been cured. I have had no opportunity of judging if they are truly reported. I shall not seek them, as I think my time will be better spent otherwise, but I should be one of the first sympathetically to investigate any case in which accuracy of information could be reasonably expected from the manner of its presentation. I am, Sir, yours faithfully,

GEO. LYDSTON CRIMP.

Bryanston-street, W., Feb. 19th, 1924.

*** At the District Court of the United States for the Jonesborough District of Arkansas a ruling has just been given in the first important trial involving the electronic reactions of Abrams. Dr. Mary Lecocq was prosecuted for alleged fraudulent use of the mails in connexion with her practice of E.R.A. Dr. Abrams, who had purposed to be present at the trial, was represented by his personal attorney, his unexpected death having occurred on the day preceding the case. After hearing testimony on both sides the Hon. Jacob Trieber pronounced the ruling of the Court as follows: "The Court is still unconvinced of the great curative

properties secured by this treatment, but there is no evidence to justify a finding that this woman did not actually and honestly believe in the success of that treatment or that she did, in undertaking to treat people, do it with the intention of defrauding them." The judge then directed the jury to return a verdict of Not guilty.—ED. L.

LEPROSY: A SELF-HEALING DISEASE.

To the Editor of THE LANCET.

SIR,—In his paper with this title in your issue of Feb. 9th Dr. Ernest Muir says that the significance of the fact that leprosy shows a tendency to spontaneous recovery in many cases does not appear to have been realised by modern writers on leprosy. In my Survey of Leprosy (*Quarterly Review*, April, 1903, No. 394, p. 407) I mentioned that "it cannot be denied that leprosy may be cured, or at least may become spontaneously arrested in its development and flicker out."—I am, Sir, yours faithfully,

GEORGE PERNET, M.D.,
Late English Editor of *Lepra*, the International Journal for Leprosy.

London, W., Feb. 14th, 1924.

ADVERTISING MARGARINE: A DISCLAIMER.

To the Editor of THE LANCET.

SIR,—Some of your readers may have noticed that a certain firm of margarine vendors have recently made use of my name in their advertisements. Such action was, I need hardly say, entirely unauthorised and unwarranted, and I took prompt steps to put a stop to it. I have since received an apology from the advertising agents who were responsible and a promise not to offend again.

I am, Sir, yours faithfully,

C. KILLICK MILLARD,
Feb. 11th, 1924. Medical Officer of Health, Leicester.

SPA TREATMENT AND HYDROGEN-ION CONCENTRATION OF THE BLOOD.

To the Editor of THE LANCET.

SIR,—My attention has been directed by the Buxton Medical Research Society to a leading article in THE LANCET of Dec. 22nd, 1923, headed Spa Treatment and Diuresis, in which it is stated: "Thus it was suggested by one speaker that some spa waters reduce the hydrogen-ion concentration of the blood, an effect which would, in the view of eminent physiologists, be rapidly fatal if it were possible of achievement." The point that you desired to emphasise was, I presume, that large variations in the pH of the blood are impossible without fatal results. With this I entirely agree, and in my remarks to the meeting I said, "for although possible variations in the pH are quite small, an increase from 7.25 to 7.35 ....." I think that no physiologist would venture to state that a variation of 0·1 is impossible. The recent observations of Cullen and Robinson[1] show variations of even greater magnitude. In a subsequent paper[2] they mention cases with recovery from acidosis in which the pH values at 38°C. were 6·98 and 7·02. The variations from the normal in these cases are three to four times greater than the one that I mentioned. A fact that is not generally appreciated is that a variation of 0·1 in the pH is considerable although it does not appear so on account of the mode of expression usually adopted. Thus pH 7·35 represents a hydrogen-ion concentration of $0{\cdot}45 \times 10-^{7}$, and pH 7·25 one of $0{\cdot}56 \times 10-^{7}$, a difference of nearly 25 per cent. This is really considerable although the variation in the pH appears quite small. I am, Sir, yours faithfully,

JOSEPH RACE,
Biochemist.

Devonshire Hospital, Buxton, Feb. 8th, 1924.

[1] Jour. Biol. Chem., lvii., p. 340.
[2] Ibid., p. 551.

Obituary.

BERNARD HARRY WEDD, M.D. LOND., D.P.H.

Dr. B. H. Wedd, former bacteriologist to the London School of Tropical Medicine, died on Jan. 28th, in Ceylon, at the age of 47. He was the fourth son of the late H. A. Wedd, of the Manor House, Woodmansterne, Surrey, and was educated at Harrow. In 1898 he entered Guy's Hospital, and graduated in 1903, obtaining the M.D. in 1906 and the D.P.H. in 1907. After holding various hospital appointments, he became assistant bacteriologist at Guy's; this was followed by his appointment as bacteriologist to the Royal London Ophthalmic Hospital. From 1910–13 he was assistant in the Cancer Research Laboratories of the Middlesex Hospital, and during those years he published several papers of importance on the subject of cancer. In 1914 he became bacteriologist to the London School of Tropical Medicine. He was jointly responsible with his sister, Miss A. F. Wedd, for the English translation of Duclaux's "Pasteur and His Work." At the outbreak of war he joined the R.A.M.C., and went to the front in the 23rd Field Ambulance with the famous Seventh Division, remaining in France, with one interval of a few months' sick-leave, until demobilised in the spring of 1919. His always delicate constitution never recovered from the strain of those five years, and it was during a visit to Ceylon, undertaken for the sake of his health, that he died.

Mr. Bryden Glendining writes as follows: "The many former colleagues of the late B. H. Wedd will have learnt of his recent death with sincere regret. His work in the bacteriological laboratories of several hospitals and in the Middlesex cancer laboratories was marked by an unusual depth of sincerity. His high ideal of research made him very critical of the standard of his own work, so that much was never published, because it failed to attain completeness or required more control experiments than he was able to provide. A man of retiring disposition, he formed few real friendships, but these few friends found his devotion to their service unstinted and his loyalty and kindness abiding. He brought an incisive acumen to bear upon any subject under discussion, and had an astonishingly wide range of general knowledge. His strength of character first revealed itself to me during an acute attack of rheumatic fever, with extensive cardiac complications, soon after he qualified. He struggled for weeks with uncomplaining fortitude in what seemed a hopeless battle, but to everyone's surprise he was again playing tennis, golf, and hockey, at all of which he excelled, a few months later."

JACQUES LOEB, M.D. STRASB.

Dr. J. Loeb, head of the Division of Physiology in the Rockefeller Institute for Medical Research, New York, died at Hamilton, Bermuda, on Feb. 12th, after a brief illness, in his sixty-sixth year. Born in Berlin in 1859 he received his early education there. He studied medicine at the universities of Berlin, Munich, and Strasbourg, graduating M.D. in 1884. His first appointment was as assistant in physiology at the University of Würzburg, returning at the end of two years to a similar post in Strasbourg. In 1891, after a short period of study at the Biological Station at Naples, he went to the United States as professor of biology at Bryn Mawr College. The following year he became assistant to the professor of physiology in Chicago University, whom he succeeded in the chair in 1900. Three years later he became professor of physiology in the University of California, where he remained for seven years until his appointment in 1910 as head of the Department of Experimental Biology at the Rockefeller Institute, New York. As a physiologist Prof. Loeb enjoyed an international reputation. He was the recipient of honorary degrees from Cambridge, Geneva,

Leipzig, and from his alma mater of Strasbourg, and many famous scientific societies and academies in both Europe and America conferred honorary membership upon him. Prof. Loeb was the author of a large number of important works in his own subject. His first publication was a treatise on the Heliotropism of Animals and its Identity with the Heliotropism of Plants, published in Würzburg in 1890. In 1900 he published "The Comparative Physiology of the Brain and Comparative Psychology," followed in 1905 by "Studies in General Physiology," and in the following year by "The Dynamics of Living Matter." In 1912 appeared "The Mechanistic Conception of Life," and in 1913 his brilliant work on "Artificial Parthenogenesis and Fertilisation." In this monograph he described step by step the evolution of his ideas on the subject, as the result of his initial experiments on the eggs of sea-urchins. His work, along with that of Delage in France, and others, showed indisputably that in a number of invertebrates—echinoderms, worms, molluscs, and some insects—it was possible to produce parthenogenetic development through treatment by various chemical and physical means, although the exact nature of the stimulus required could not be determined.

In 1922 he published the results of several years' work on the subject of "Proteins and the Theory of Colloidal Behaviour," in which he contended that colloids combine with acids or alkalis according to the laws of crystalloid chemistry, thus attacking the view that these bodies are governed by two entirely different sets of laws.

Prof. Loeb married in 1891 Anne, daughter of G. H. Leonard, of Easthampton, Massachusetts, and had two sons and one daughter.

CAMPBELL WILLIAM DE MORGAN, M.R.C.S., L.R.C.P. LOND.

THE death of Dr. C. W. De Morgan, on Jan. 27th, at St. Leonards, ends the male line of this distinguished family. Campbell William De Morgan was born at King Williams Town, S. Africa, in 1877, where his father, Dr. Edward Lindsey De Morgan, was in practice. He was the grandson of the mathematician and philosopher Augustus De Morgan, and was named after his uncle William De Morgan, artist, potter, and novelist, and his great uncle Campbell De Morgan, the surgeon, whose memory will be familiar to all medical men in association with "De Morgan spots." He was educated at St. Mary's Hospital, where he qualified M.R.C.S., L.R.C.P. in 1912. After holding appointments at the London Lock Hospital and the Kensington General Hospital he settled in general practice in London. In practice he acquired a host of friends, especially amongst the poor, but he was never ambitious of scientific distinction, and his happiest times were spent, undoubtedly, in the musical and literary circles of Hampstead and Chelsea, where his family connexions gave him a ready entry. During the war he suffered greatly from overwork and some 18 months ago his health broke down completely. He is survived by two sisters.

THE LATE SIR KENNEDY DALZIEL.

WE have received the following personal appreciations of the late Sir Kennedy Dalziel, whose obituary notice appeared in our columns last week.

Mr. Farquhar Macrae, visiting surgeon to the Western Infirmary, Glasgow, writes: "By the death of Sir Kennedy Dalziel, Glasgow and the whole West of Scotland has lost not only an unusually skilful surgeon, but one who occupied a much larger place in the public eye than is usually the case with the successful surgeon, for his interests were wide and were not confined to the merely professional side of life. The writer of this note knew him intimately for over 30 years, first as one of his students, then as his assistant, and latterly as a colleague; and in all these capacities found him equally engaging and equally helpful. His success and the public position he attained were the result of an unusual combination of qualities. Possessed of a fine presence and a manner of great charm and kindliness, he early laid the foundations of his professional success by assiduous study of anatomy when a student under the late Prof. Johnston Symington in Edinburgh, and of pathology during the time he spent in Berlin and Vienna before coming to Glasgow as house surgeon to Sir William Macewen at the Royal Infirmary. Though a complete stranger in Glasgow, his outstanding ability and his obvious bent towards surgery were early recognised, and he soon obtained appointments in the out-patient department of the Western Infirmary and the Children's Hospital.

"Never at any time a great reader or close student of surgical literature, he had an extraordinary capacity for acquiring information, or as he used to phrase it, 'for picking people's brains.' Even knowing this one was constantly surprised at the extent and variety of his knowledge of current surgical opinions and the shrewdness with which he was able to criticise them. As an operator Sir Kennedy Dalziel was facile princeps during the past generation in the West of Scotland. Even in his early days his manipulative dexterity was something to marvel at. Never specially original, he had a mind open to new ideas, and was one of the pioneers in Scotland in abdominal surgery. He was the first to have a recovery after operation for perforated gastric ulcer, and for peritonitis following perforation in enteric fever.

"To those who knew him intimately it was not, however, the surgeon that appealed most, but the man. Full of the milk of human kindness, always genial and enjoying the humour of life, he was a delightful companion. He made few enemies and a host of friends. Even to one who knew him well and appreciated his qualities it was remarkable to find, as one went about the West and South of Scotland during his long last illness, how great was the sense in all grades of society of a personal misfortune and loss. Except Sir Hector Cameron, who is fortunately still with us, no surgeon in the West of Scotland has filled so great a place in the estimation of the public as Sir Kennedy Dalziel, or filled it so adequately."

Prof. T. K. Monro, Regius Professor of the Practice of Medicine in the University of Glasgow, writes: "While the most important estimate of Sir Kennedy Dalziel's work must of necessity come from a surgeon, it is perhaps fitting that a tribute to his memory should be rendered by a physician who knew him well and valued his help very highly. My friendship with Dalziel dated back to 1890, and I believe that in that year I gave the anæsthetic to the first patient on whom he performed abdominal section. My feeling of admiration for his skill and neatness, and for his apparently natural aptitude for that department of practice was not lessened by the subsequent witnessing of many laparotomies performed by himself and others, and I think he was recognised by all as particularly adept in abdominal surgery. He was my colleague at the Western Infirmary from 1913 onwards, and on innumerable occasions my patients had the benefit of his advice, encouragement, and professional skill. His help was given most willingly and his manner with the patients was delightful.

"Dalziel did a good deal of court work in his day, and was well known as a clever witness. He did not publish much, but one of his noteworthy contributions to medical literature was his description in 1913 of the rare condition which he termed chronic interstitial enteritis. In ordinary life he was a most genial and interesting companion. He had an immense practice among rich and poor, and the crowd which assembled at the funeral service in the cathedral and followed his remains to the necropolis included doubtless not a few who were indebted to him for the preservation of their lives or for their restoration to health. To many besides his sorrowing relatives his departure means a great loss."

Medical News.

UNIVERSITY OF OXFORD.—The trustees of the Rockefeller Foundation have offered to the University a gift of £75,000 for the development of the department of biochemistry. A decree was carried without opposition authorising the assignment of a further area of 9 acres of the University park for the extension of the science departments.

In a Congregation held on Feb. 16th the following degrees were conferred:—*D.M.:* S. C. Dyke, Exeter. *B.M.:* B. G. Scholefield, Christ Church.

UNIVERSITY OF LONDON.—The second of the series of four lectures on cancer in the Governors' Hall, St. Thomas's Hospital, Albert Embankment, S.E. 1, by Dr. J. A. Murray, at 5 P.M., on Thursdays, will be given on Feb. 28th, subsequent lectures taking place on March 6th and 13th. The three remaining lectures of the course of four lectures on Blood will be given by Prof. B. J. Collingwood at St. Mary's Hospital Medical School, Praed-street, Paddington, W., at the same dates and time. Attendance at this course is recognised in connexion with the B.Sc. (Honours) Degree in Physiology. Admission to both courses of lectures is free.

Thomas Smythe Hughes Medical Research Fund.—The Senate will proceed shortly to consider applications for grants from this Fund, which are allocated annually for the purpose of assisting original medical research. Applications must be received not earlier than May 1st and not later than June 16th, 1924, and must be accompanied by the names and addresses of not more than two persons to whom reference may be made. Further particulars may be obtained from the Academic Registrar.

A *University Studentship in Physiology*, of the value of £50 for one year, will be awarded to a student qualified to undertake research in physiology, and will be tenable in a physiological laboratory of the University or of a school of the University. A student will not be eligible for re-election. Candidates must be matriculated students or graduates of the University, and must submit a statement of their qualifications, together with the names of three persons as references, when applying the Principal Officer on or before May 31st, 1924. Full regulations for the award of the studentship may be obtained on application.

University College Medical School.—The Senate invite applications for the Graham Scholarship in Pathology, value £300 per annum, in the first instance for two years, founded under the will of the late Dr. Charles Graham to enable "a young man to continue his pathological researches and at the same time to secure his services to the School of Advanced Medical Studies connected with University College Hospital as a teacher under the direction of the professor of pathology." The successful candidate will, if possible, take up the scholarship as from April 1st, 1924. Intending applicants who desire fuller information of the conditions on which the scholarship will be held may call personally on Prof. A. E. Boycott, University College Hospital Medical School, W.C. 1, after having made an appointment. The scholarship is in no way restricted to students either of University College Hospital Medical School or any other medical school of the University of London. Applications, addressed to the Principal Officer, University of London, South Kensington, S.W. 7, must (*a*) be accompanied by the names of not more than three references, one at least of which should be the name of some professor, lecturer, or teacher of the university or college in which the candidate has conducted his studies in pathology, (*b*) state the research upon which the applicant proposes to work, and (*c*) be received not later than the first post on Monday, March 3rd, 1924. Envelopes should be marked "Graham Scholarship."

The Council of King's College have granted the title of Emeritus Professor to Dr. R. H. Steen on his retirement from the Professorship of Psychological Medicine at King's College Hospital.

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASE.—An Imperial Social Hygiene Congress, organised by this Council, is to be held at the British Empire Exhibition from May 12th to 16th. The Congress will be opened by the Minister of Health, and a review of the existing situation will be given by the Chief Medical Officer of the Ministry of Health and a medical member of the Scottish Board of Health. The Dominions Overseas and the Crown Colonies have been invited to send representatives. Dame Rachael Crowdy will, it is hoped, open the discussion on the International Aspect of Social Hygiene, and will be followed by Sir Arthur Newsholme and others. On May 13th, under the Presidency of Viscount Astor, Prof. J. A. Thomson and Sir Frederick Mott will define the problem of training the young in sex control, stating the biological and sociological reasons for maintaining a monogamous system of marriage and a stable family. In the afternoon of the same day Mr. James Stewart, the Under Secretary of Health for Scotland, will preside over the Conference, which will discuss the Place of the Local Authority in the Venereal Diseases Campaign, Mr. W. E. Whyte acting as hon. secretary of the section. On May 14th Dr. Kay Menzies will preside over a Conference of special interest to venereal disease officers of clinics, to hospital almoners, and to all concerned in the problem of securing the maximum efficiency of the venereal disease clinic. This Conference will be preceded in the morning by a display of the propaganda films. Colonel L. W. Harrison will open the discussion from the point of view of the clinical officer; Dr. J. J. Butterworth, county medical officer of health for Lancashire, will deal with the administrative aspect; Dr. Margaret Rorke will be in a position to give the experiences of the women's clinics, and it is hoped that these British speakers will be supplemented by representatives from overseas. The position of the general practitioner in the anti-venereal disease schemes will be considered on May 15th, when a display of technical medical films will also be given. Mr. E. B. Turner will preside over this section. Mr. Amery, late Parliamentary Secretary to the Colonial Office, will preside over the special section devoted to the consideration of Imperial questions. The names of the speakers in this section are not yet to hand, but the Governments and the medical departments of the Dominions and Crown Colonies have all been invited to nominate representatives, and it is hoped that those parts of the Empire where an active programme is in operation will give the workers in the home country the benefit of their experiences. The discussion in the morning of May 16th will be on the Social Hygiene Movement Overseas, and in the afternoon on Methods of Enlightenment for Illiterate Races. Owing to the uncertainty of the political situation, it has not been possible to ascertain whether this Congress can be included as part of the official programme of the work of the Council for the coming year. If it was to be held it was necessary, therefore, for the Council to undertake the arrangements in their capacity as a voluntary organisation. The subjects under discussion are of such outstanding importance that the opportunity should be taken, it is felt, for an interchange of ideas on Imperial lines.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At an ordinary Council meeting held on Feb. 14th, Sir John Bland-Sutton being in the chair, a report was read from the Court of Examiners respecting candidates found qualified for the diploma of Member, and diplomas were granted to 197 candidates.—A report was read from the Conjoint Examining Board respecting candidates found qualified for the diploma in Ophthalmic Medicine and Surgery, and diplomas were granted jointly with the Royal College of Physicians to 12 candidates mentioned in the report.—It was agreed that the President, Sir John Bland-Sutton, be authorised to act with the President of the Royal College of Physicians as almoner for the fund offered by Lord Atholstan for the cure of tuberculosis, to use the fund at their discretion in assisting research work, or, if necessary, in initiating new lines of work in tuberculosis.—The President reported that a meeting of the Fellows would be held at the College on Thursday, July 3rd, for the election of three Fellows in the vacancies occasioned by the retirement from the Council in rotation of Mr. William F. Haslam, Mr. T. H. Openshaw, and Mr. Raymond Johnson; that notice of the meeting would be given to the Fellows by advertisement and by circular on March 7th, that March 17th would be the last day for the nomination of candidates, and that a voting paper would be sent on April 1st to every Fellow of the College whose address is registered at the College.—The President further reported that the Fellows would be invited to attend a reception to be held from 4–6 P.M. on the same day, and that the annual exhibition of additions to the museum would be open for inspection during that time.

SIR JOHN TWEEDY'S COLLECTION.—A collection of instruments used by the late Sir John Tweedy has been presented by his widow to the museum of the College of Surgeons. The most important are two patterns of optometers, used by Tweedy for estimating the degree of astigmatism and other errors of refraction, and first described in THE LANCET of Oct. 28th, 1876,[1] are interesting additions to the group of instruments actually used by their own designers. These include a Beer's knife presented by Prof. Beer himself to G. J. Guthrie, a set of strabismus instruments used by Guthrie in his practice, a Jaeger's strabismus hook given by Jaeger to White Cooper, and a Tyrell's cataract knife used by its inventor.

[1] See also THE LANCET, April 24th, 1886.

UNIVERSITY OF WALES.—At a recent examination for the Tuberculous Diseases Diploma the following candidate was approved: Johan Fredrik Wicht.

THE Minister of Agriculture has announced his intention to appoint a committee of veterinarian and human pathologists to frame a scheme for investigating the causes of foot-and-mouth disease and the possibility of creating immunity for cattle.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—The Morison lectures will be delivered by Dr. John Thomson within the Hall of the College, 9, Queen-street, Edinburgh, on Monday, Wednesday, and Friday, March 3rd, 5th, and 7th, at 5 P.M. The subject of the lectures will be the Symptoms, Diagnosis, and Treatment of Mental Defect during Infancy and Early Childhood.

A DINNER of the Royal College of Physicians of Edinburgh was held in the hall of the College, 9, Queen-street, on Feb. 15th.

MANCHESTER CLINICAL SOCIETY.—On Thursday, Feb. 28th, at 4.30 P.M., Sir Thomas Horder will lecture on Medicine and Old Ethics in the Medical Society's Library.

INTERNATIONAL SOCIETY OF MEDICAL HYDROLOGY.—A special meeting of the society will be held at the house of the Royal Society of Medicine, 1, Wimpole-street, London, W., on March 5th, at 1.30 P.M., when a discussion on the Treatment of Tropical Disease by Waters and Baths will be opened by Dr. Pierret, of La Bourboule, France. All interested are invited to attend.

ANTI-TUBERCULOSIS CAMPAIGN IN CANADA.—It is announced that Lord Atholstan has offered to coöperate with the Government in a campaign against tuberculosis, and proposes to contribute £100,000 towards the cost. His suggestion is that in the first place measures should be taken in other districts on the lines of the Framingham experiment.

UNIVERSITY OF PARIS.—A special practical revision course has been instituted by the Faculty of Medicine at the Medical Clinic of the Hôtel-Dieu on modern methods in clinical work and the application of a current laboratory technique in diagnosis. The course of 35 lectures and demonstrations, which will be conducted in French, commences on Monday, April 7th, and continues till April 18th, under the direction of Prof. Maurice Villaret, assisted by many collaborators. The fee is 150 francs, and the course is open to French and foreign medical men. A full programme may be obtained from the Secretary of the Faculty of Medicine at the University.

THE PRICE OF INSULIN.—The Medical Research Council announce that the principal firms engaged in the manufacture of insulin in this country have arranged to reduce the retail price from 12*s.* 6*d.* to 6*s.* 8*d.* per bottle of 100 units, the change to take effect on Feb. 25th. It will be remembered that the original price in April, 1923, was 25*s.*, and that this was reduced to 17*s.* 6*d.* in July. A gradual increase of 40 per cent. in the strength of the unit then followed, and on Jan. 1st, 1924, the price of 100 revised units was fixed at 12*s.* 6*d.* After less than a year's experience of large scale production the manufacturers have thus found it possible to reduce the original price by nearly three-fourths nominally, and by four-fifths relatively to the actual strength of the product. The new price is below the most recent retail price in America of which information has been received. The Council's announcement concludes: "It may be added that the recently described method of extracting insulin without the use of alcohol has not yet reached the stage of commercial application. In view of the difference between laboratory and large scale methods and of the efficiency to which the alcohol process has now been brought commercially, it must remain uncertain for some time to come whether or not further reductions in price are to be expected from any change of method in this direction."

We are informed by Messrs. Burroughs, Wellcome and Co., who produce the "Wellcome" brand insulin, that their scientific and technical workers have been successful both in improving the yield of insulin from the raw material and in raising the standard of purity. There have been no dramatic discoveries but a series of technical improvements, each step contributing its share to economy in preparation and purity of the product.

Messrs. The British Drug Houses, Ltd., writing on behalf of Messrs. Allen and Hanburys Ltd. and themselves, announce that progressive large-scale manufacture has enabled their hopes of lower cost of production to be realised, and the benefit is to be handed on to the public, this being the third reduction in the price of insulin "A.B." brand since manufacture was begun just over a year ago.

THE Swiney Prize for 1924 has been awarded by the Royal College of Physicians and the Royal Society of Arts to Sir Paul Vinogradoff, F.B.A., Corpus Professor of Jurisprudence in the University of Oxford, for his work, "Outlines of Historical Jurisprudence." The prize consists of a cup, the value of which is £100, and a cheque for £100. It is awarded every fifth year to the author of the best work on jurisprudence.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—The Royal Northern Hospital has arranged in conjunction with the Central London Ophthalmic Hospital, the North-Eastern Fever Hospital, and the Royal Chest Hospital, for a two weeks' intensive course from March 3rd to March 15th. It will include demonstrations of clinical methods and cases, lecture-demonstrations, and work in all departments of the hospital from 10.30 A.M. each day. Further particulars, with copies of the complete syllabus, can be obtained on application to the Secretary to the Fellowship of Medicine. A further special course in gynæcology will be given by members of the staff at the Chelsea Hospital for Women from March 3rd to March 28th. The course will consist of lectures and clinical demonstrations in the wards and out-patient department, and in most instances the lectures will be preceded by demonstrations of cases in the out-patient department or by operations in the theatre. A series of lectures and demonstrations in psychological medicine will be given by Dr. J. G. Porter Phillips and Dr. Thomas Beaton at Bethlem Royal Hospital, on Thursdays and Saturdays, at 11 A.M. The subjects of the lectures are given in the syllabus, which is now available. A series of six lecture-demonstrations dealing with recent advances in medical electrical treatment will be given by Dr. C. B. Heald, at the Royal Free Hospital, on Wednesdays, at 5.30 P.M., from March 5th to April 9th. A course on diseases of children, arranged by the Royal Waterloo Hospital for Children and Women, will be held from March 17th to April 5th. The various aspects of children's diseases will be dealt with by members of the staff by means of lecture-demonstrations, ward work, out-patient cliniques, operations, &c. At the end of March a course in ophthalmology will be given at the Royal Westminster Ophthalmic Hospital, details of which will be announced later. Copies of the syllabus with full particulars regarding any of the foregoing courses can be obtained on application to the Secretary of the Fellowship of Medicine, 1, Wimpole-street, London, W. 1.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt. (short service) A. C. Esmonde is transferred to the Permanent List.

Surg. Lt. G. L. Stanley is allowed to withdraw with a gratuity.

ROYAL ARMY MEDICAL CORPS.

The undermentioned Majs. retire on ret. pay: A. E. B. Wood (granted the rank of Lt.-Col.), H. T. Stack, D. P. Johnstone (secd. Staff, India).

The undermentioned Capts. to be Majs.: A. G. Biggam, R. K. Mallam, D. T. M. Large, W. W. Pratt, A. Hood (Temp. Maj.), E. A. Strachan, C. J. Blaikie, J. H. M. Frobisher, W. B. Stevenson, D. T. Richardson, C. M. Ingoldby, G. A. Blake, (Bt. Maj.), C. J. H. Little, S. J. Barry (Prov.), R. W. Vint, H. W. L. Allott (Prov.), E. P. Allman-Smith.

Capt. G. E. MacAlevey is secd. for service with the Egyptian Army.

Temp. Capt. D. S. Taylor relinquishes his commn. (granted the rank of Maj.).

TERRITORIAL ARMY.

Lt.-Col. G. W. Miller, from R.A.M.C.T.A., to be Col. and Asst. Director of Medical Services, 51st (High.) Divn. T.A., vice Col. F. Kelly, vacated.

Capt. J. D'A. Champney, R.A.M.C., to be Divl. Adjt., 53rd (Welsh) Div., vice Maj. M. White, R.A.M.C., vacated.

ROYAL AIR FORCE.

J. J. Clarke is granted a short service commission as a Flight Lt.

Flight Lt. B. F. Beatson is promoted to rank of Squadron Leader on completion of ten years' service.

INDIAN MEDICAL SERVICE.

Lt.-Col. A. N. Fleming to be Col.

Dwarka Prasad Bhargava to be Temp. Capt.; Muneeh-ud Din Ninhas, Asa Nand Narang, and Lachhman Das Khatri to be Temp. Lt.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, FEB. 13TH.

Insurance Act Medical Service.

Sir KINGSLEY WOOD asked the Prime Minister whether he proposed to advise the setting up of a Royal Commission to investigate the medical service under the National Insurance Act and kindred matters.—Mr. RAMSAY MACDONALD replied: Perhaps the hon. Member will be good enough to repeat his question this day week, when I hope to be in a position to reply to it.

Remuneration of Panel Practitioners.

Sir KINGSLEY WOOD asked the Minister of Health whether he had received the report of the committee of inquiry appointed to consider the remuneration to be paid to national health insurance practitioners; and what steps he proposed to take in the matter.—Mr. WHEATLEY replied: The recommendations of the Court of Inquiry have already been published, but I am not at this stage prepared to anticipate the provisions of any legislation required to give effect to these recommendations.

THURSDAY, FEB. 14TH.

The Lease of Bellahouston Hospital.

Mr. MURRAY asked the Minister of Pensions if the Ministry intended to close Bellahouston military hospital, Glasgow; and, if so, what arrangements were being made to provide treatment for ex-Service men at present accommodated at Bellahouston or who attended there for treatment and advice.—Mr. F. O. ROBERTS replied: I have no intention of closing Bellahouston Hospital if it can be avoided, and I am hoping that it may be found practicable to come to an arrangement with the Glasgow Corporation, who own the land upon which the hospital stands, with a view to an extension of the expiring lease.

Treatment Allowances.

Mr. KEDWARD asked the Minister of Pensions the number of ex-Service pensioners who attended hospital during January this year as out-patients and received treatment allowances, and the number of such out-patients in receipt of treatment allowances during the same month of the years 1921, 1922, and 1923; if he was aware that very grave hardship was inflicted on large numbers of ex-Service pensioners who had been under treatment in Ministry of Pensions hospitals owing to the termination of treatment allowances immediately on their discharge from hospital; whether he would arrange for treatment allowances to be paid to those men for at least one week after discharge; and was he aware that an organisation upheld by voluntary contributions—namely, the British Red Cross—very often had to help in such cases to prevent privation and suffering to such men and their families.—Mr. F. O. ROBERTS replied: I regret that figures for the precise periods mentioned are not available, but I am circulating information which will, I think, serve the hon. Member's purpose. The point raised in the latter part of the question has recently been inquired into by a departmental committee, who have recommended that my department and the Ministry of Health should jointly consider what steps can properly be taken in the circumstances mentioned. The whole matter is receiving my consideration. The following are the particulars referred to:

—	No. undergoing out-patient treatment.		Total.
	With allowances.	Without allowances.	
During Dec., 1923 ..	10,259	26,956	37,215
During Dec., 1922 ..	19,833	51,042	70,875
During May, 1922* ..	27,701	60,733	88,434

* The earliest date for which records are available.

Beckett's Park Hospital, Leeds.

Sir GERVASE BECKETT asked the Minister of Pensions whether a decision had been arrived at as to the closing of the military hospital at Beckett's Park, Leeds; whether he was aware of the hardship and inconvenience to the many hundreds of ex-Service patients attached to the hospital; whether he had considered the great expense entailed upon removal elsewhere and the loss of the large sums laid out upon the present buildings; and whether he was aware that the proposal had excited great apprehension in the minds of the patients and indignation amongst their relatives and the people of Yorkshire generally.—Mr. F. O. ROBERTS replied: This building is held by the Ministry on a lease which will expire next August. I am anxious to obtain a renewal, and negotiations to that end are proceeding.

Ex-Service Men and Tuberculosis.

Mr. SHORT asked the Minister of Pensions the number of ex-Service men suffering from tuberculosis who had been deprived of their pensions for one reason or another.—Mr. F. O. ROBERTS replied: Since July, 1922, the earliest date available, 900 awards in respect of pulmonary tuberculosis have been discontinued out of a total of 38,000 awards in payment for that disability.

Mr. SHORT asked the Minister of Pensions whether he was aware of the large number of ex-Service men suffering from pulmonary tuberculosis who had been deprived of their pensions on the ground that the disability had ceased but whose health and physical condition did not permit them to follow any but exceptional occupations which were most difficult to obtain, who could not withstand varying weather conditions; and, if so, what action, if any, did he propose to take to assist such cases.—Mr. F. O. ROBERTS replied: I am aware of this difficulty, which will have the earliest possible consideration. I shall, of course, be glad to look into any particular case which my hon. friend may have in mind.

The Feeding of School-children.

Mr. MARLEY asked the President of the Board of Education whether it was his intention to continue the system known as rationing, by which the sum available to be divided among all the local education authorities who were prepared to undertake to provide meals for school-children was strictly limited, with the consequence that thousands of children had to go to school insufficiently fed.—Mr. C. TREVELYAN replied: I do not propose to retain a specific limit on the expenditure of local education authorities on the provision of meals for school-children for the calculation of grant. At the same time, I rely on local education authorities to exercise due economy and care in the administration of this service.

The White Lead Convention.

Mr. GRAHAM WHITE asked the Minister of Labour if the difficulties which prevented the ratification of the convention on the use of white lead in paint had yet been removed; and if it was now the intention of the Government to agree to the ratification of this convention.—Mr. T. SHAW replied: I have been in consultation with my right hon. friend, the Home Secretary. The question is under consideration by His Majesty's Government, and the decision will be announced as soon as possible.

Use of Tuberculin by Farmers.

Mr. SPERO asked the Minister of Health whether he was aware that a number of farmers injected their herds with tuberculin and that such injections had the effect of nullifying the veterinary inspectors' tests; and whether he would restrict the sale of tuberculin to qualified medical men and veterinary surgeons.—Mr. BUXTON replied: I am aware that a tuberculous animal which has been subjected to the tuberculin test will not normally react again to this test for a considerable time, and that an unscrupulous stock-owner therefore might use this to enable him to pass a tuberculous animal for a healthy one. I have no reason to think, however, that this practice is carried on to any appreciable extent. Many farmers use tuberculin for the legitimate purpose of testing their herds, and I am not prepared at present to place obstacles in their way by adopting the suggestion contained in the second part of the question.

Infant Welfare Centres.

Mr. BLACK asked the Minister of Health whether he was willing to sanction the establishment of infant welfare centres under the supervision of the county councils, and with the usual Government grants wherever efficient voluntary services were offered for the proper conduct thereof.—Mr. WHEATLEY replied: I am prepared to consider where additional centres are needed for proposals for the establishment of infant welfare centres by local authorities, or by voluntary bodies acting in coöperation with local authorities, and to pay the usual grants-in-aid on approved expenditure.

Hospital Treatment for Tuberculosis.

Mr. BLACK asked the Minister of Health whether he was prepared to sanction the provision of hospital treatment for advanced cases of tuberculosis as proposed by the county of Leicester; and, if not, whether he had considered the futility of providing treatment for many early cases of consumption whose disease could be directly traced to infection from persons in an advanced state of tuberculosis who were compelled to remain in crowded houses until removed by death.—Mr. WHEATLEY replied: The question of the provision of hospital treatment for advanced cases of tuberculosis in Leicestershire is receiving my consideration in connexion with communications which have taken place between my department and the county council as to the

most suitable means of effecting such provision. The second part of the question does not, therefore, arise.

FRIDAY, FEB. 15TH.

Tuberculosis in Cattle.

Sir ROBERT ASKE asked the Minister of Health whether his attention had been called to the report of the veterinary inspector of Newcastle-upon-Tyne, upon his examination of cattle sent in for slaughter for food, showing that of cattle externally sound over 74 per cent. were in fact suffering from tuberculosis, and to the representations of the city council with reference thereto; and whether the Government would introduce at an early date legislation for protecting infant life against the risks arising from the distribution of milk infected with tubercle bacilli.—Mr. WHEATLEY replied: Yes, sir. My attention has been drawn to the report of the Newcastle-upon-Tyne veterinary inspector, and to the representations of the city council with reference thereto. With regard to the second part of the question, I would refer the hon. Member to the Milk and Dairies (Consolidation) Act, 1915, the operation of which is postponed till Sept. 1st, 1925, by the Milk and Dairies (Amendment) Act, 1922.

MONDAY, FEB. 18TH.

The "Humane Killer."

Sir HARRY BRITTAIN asked the Minister of Agriculture whether he would do what he could to expedite the compulsory introduction of the humane killer into this country.—Mr. WHEATLEY, who replied, said: The matter will receive the consideration of the Government. As the hon. Member was informed in July last, any local authority can make the use of the "humane killer" compulsory in its own area, and over 100, including the L.C.C., have already done so.

Deaths from Infectious Diseases.

Mr. BROAD asked the Minister of Health how many deaths were registered in 1923 as due to small-pox, measles, influenza, pneumonia, diphtheria, and scarlet fever.—Mr. WHEATLEY replied: The following are the provisional figures of the deaths registered in 1923 as due to these diseases (except pneumonia): small-pox, 7; measles, 5200; influenza, 8371; diphtheria, 2674; scarlet fever, 971. The final figures, including the number of deaths from pneumonia, will not be available until the end of the present quarter.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Feb. 25th.

ODONTOLOGY: at 8 P.M.
Casual Communication:
Mr. W. W. James: Hæmorrhage following Tooth Extraction.
Adjourned Discussion on Pyorrhœa, to be reopened by Mr. J. G. Turner.

Tuesday, Feb. 26th.

MEDICINE, NEUROLOGY, OPHTHALMOLOGY, OTOLOGY } at 5.30 P.M.
Joint Discussion on Vertigo.
Dr. R. Hutchison (President of the Section of Medicine) in the chair.
Speakers: Sir Humphry Rolleston, Dr. Gordon Holmes, Mr. Sydney Scott, and Mr. J. Herbert Fisher.

Wednesday, Feb. 27th.

COMPARATIVE MEDICINE: at 5 P.M.
Paper:
Dr. T. W. M. Cameron: The Pig and Human Diseases.
Specimens:
Dr. R. T. Leiper and Dr. T. W. M. Cameron will show a series of specimens illustrating Host Reactions to Helminth Infections.

Thursday, Feb. 28th.

UROLOGY: at 8.30 P.M.
Papers:
Dr. W. MacAdam: Cholesterol Content of Blood in Relation to Genito-urinary Sepsis.
Mr. H. Winsbury White: Subparietal Injury of the Kidney.

Friday, Feb. 29th.

The next Social Evening will be held on Friday, Feb. 29th, when Fellows, Members of Sections, Associates, and their friends will be received by the President, Sir William Hale-White, and Lady Hale-White, at 8.30 P.M.
Dr. Arnold Chaplin will give, at 9 P.M., a brief discourse on Famous Medical Men of the Eighteenth Century, with lantern illustrations of portraits.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Feb. 25th.—8.30 P.M., Discussion on the Treatment of Fibroids of the Uterus. To be introduced by Dr. Cuthbert Lockyer, followed by Sir George Blacker, Mr. Thos. G. Stevens, Dr. H. Williamson, Mr. Beckwith Whitehouse, Dr. N. S. Finzi, Mr. J. P. Hedley, Dr. Douglas Webster, and others.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos-street, Cavendish-square, W.
FRIDAY, Feb. 29th.—8.30 P.M., Discussion on the Instruction of the Medical Profession and the Lay Public with respect to the Facilities provided for the Diagnosis and Treatment of Venereal Disease. The following will take part: Colonel L. W. Harrison, Dr. F. Kay Menzies, Mr. Frank Kidd, Mr. E. B. Turner, Prof. Winifred Cullis, Mrs. Neville Rolfe.

ROYAL SOCIETY OF ARTS, John-street, Adelphi.
WEDNESDAY, Feb. 27th.—8 P.M., Dr. Charles F. Myers: The Use of Psychological Tests in the Selection of a Vocation.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Feb. 25th, to FRIDAY, Feb. 29th.—Combined Course on Diseases of Children. Clinical Demonstrations and Lectures from 10 A.M. to 4.30 P.M. daily, including the CHILDREN'S CLINIC (WESTERN GENERAL DISPENSARY), the PADDINGTON GREEN CHILDREN'S HOSPITAL, the VICTORIA HOSPITAL FOR CHILDREN, and the ROYAL WATERLOO HOSPITAL.—LONDON LOCK HOSPITAL. Clinical work daily. Lectures at Dean-street as follows: Mon., 5 P.M., Mr. Gibbs: Ante-natal and Post-natal Treatment of Syphilis; Tues., 2.30 P.M., Mr. McDonagh: Microscopic Demonstrations of Leucocytozoon Syphilidis; Thurs., 4.30 P.M., Mr. Abel: Treatment of Chronic Gonorrhœa in the Male.—LONDON SCHOOL OF TROPICAL MEDICINE. Tues. and Thurs., 2 P.M., Special Clinical Demonstrations.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.
POST-GRADUATE COURSE: FEBRUARY–MARCH, 1924.
CLINICAL LECTURES AND DEMONSTRATIONS.
MONDAY, Feb. 25th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Spinal Cord Diseases: Dr. James Taylor.
TUESDAY, Feb. 26th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Demonstration of Specimens of Cerebral and Spinal Tumours: Dr. Greenfield.
THURSDAY, Feb. 28th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Intracranial Complications of Middle-ear Disease: Mr. Just.
FRIDAY, Feb. 29th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Surgery of Spinal Cord: Mr. Sargent.
COURSE OF LECTURES AND DEMONSTRATIONS ON THE PATHOLOGY OF THE NERVOUS SYSTEM.
MONDAY, Feb. 25th.—12 noon, Poliomyelitis and Lethargic Encephalitis: Dr. J. G. Greenfield.
The fee for the Course, including Pathology, is £5 5s. For those who hold Perpetual Tickets the fee is £3 3s.
COURSE OF LECTURES ON THE ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM.
WEDNESDAY, Feb. 27th.—12 noon, Cerebellum: Dr. Kinnier Wilson.
THURSDAY, Feb. 28th.—12 noon, Mesencephalon and Corpus Striatum: Dr. Kinnier Wilson.
The fee for this Course will be £2 2s.
Dr. F. M. R. Walshe will give A COURSE OF EIGHT CLINICAL DEMONSTRATIONS, CHIEFLY ON METHODS OF EXAMINATION OF THE NERVOUS SYSTEM, in the Wards at 10 A.M., every Wednesday and Thursday during February. The numbers attending the Course will be limited. Fee £2 2s.
COURSE OF LECTURES AND DEMONSTRATIONS ON THE NEUROLOGY OF THE EYES.
WEDNESDAY, Feb. 27th.—3.30 P.M., Optic Atrophy: Mr. Leslie Paton.
The fee for this Course alone is £5 5s. If taken in conjunction with the general Post-Graduate Course the fee is £3 3s. All applications should be sent to the Secretary, Medical School.
Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.
Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.
J. G. GREENFIELD, Dean of Medical School.

ST. THOMAS'S HOSPITAL, Albert Embankment, S.W.
(In the Governors' Hall.)
THURSDAY, Feb. 28th.—5 P.M., Dr. J. A. Murray: Cancer (Second Lecture).

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
TUESDAY, Feb. 26th.—5 P.M., Dr. MacCormac: Desensitisation.
THURSDAY.—5 P.M., Dr. Griffith: Bullous Dermatoses.

HOSPITAL FOR SICK CHILDREN, Great Ormond-st., W.C.
THURSDAY, Feb. 28th.—4 P.M., Mr. Barrington-Ward: Appendicitis.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, Feb. 25th.—10 A.M., Surgical Registrar: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards.
TUESDAY, 10 A.M., Dr. Drummond Robinson: Gynæcological Operations. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Mr. Tyrrell Gray: Surgical Wards.
WEDNESDAY.—12.15 A.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Owen: Medical Out-patients. 2 P.M., Dr. Pernet: Skin Dept.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 11 A.M., Dr. Simson: Gynæcological Demonstration. 2 P.M., Mr. Bishop Harman: Eye Dept.
FRIDAY.—10.30 A.M., Dr. Pritchard: Medical Wards. 12 noon, Mr. Endean: Venereal Diseases. 2 P.M., Mr. Sinclair: Surgical Out-patients.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose and Ear.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.
THURSDAY, Feb. 28th.—5 P.M., Mr. L. G. Phillips: Infant Feeding.

CANCER HOSPITAL, Kensington, S.W.
WEDNESDAY, Feb. 27th.—4.30 P.M., Dr. C. A. Joll: Malignant Disease of the Thyroid Gland.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.
TUESDAY, Feb. 26th.—4.15 P.M., Mr. C. Roberts: Surgical Complications of Diabetes.

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE (at Whitworth-street West Branch).
FRIDAY, Feb. 29th.—4.30 P.M., Dr. J. F. Ward: The Internal Secretions in Infancy and Childhood.

MANCHESTER FRENCH HOSPITAL POST-GRADUATE LECTURES.
THURSDAY, Feb. 28th.—4.30 P.M., Mr. A. C. Magian: The Operative Treatment of Prolapsed Ovaries.

SALFORD ROYAL HOSPITAL LECTURES.
THURSDAY, Feb. 28th.—4.30 P.M., Dr. A. C. Sturrock: The Nervous Manifestation of Rheumatism.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)
MONDAY, Feb. 25th.—(At the Children's Hospital.) Dr. Murray Bligh: Rickets.
TUESDAY.—(At the Southern Hospital.) Mr. G. P. Newbolt: Surgical Cases.
WEDNESDAY.—(At the Northern Hospital.) Mr. McMurray: Surgical Condition of the Hip-joint.
THURSDAY.—(At the Stanley Hospital.) Dr. Gullan: Aortic Valvular Disease.
FRIDAY.—(At the Royal Infirmary). Mr. Woolfenden: Surgical Cases.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES.
TUESDAY, Feb. 26th.—(At the Royal Hospital.) 3.30 P.M., Dr. Mould: Dementia Præcox.
FRIDAY.—(At the Royal Infirmary.) 3.30 P.M., Prof. Mellanby: Some Recent Discoveries in Therapeutics.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Feb. 27th.—4 P.M., Dr. A. C. Inman: The Rôle of the Laboratory in the Tuberculosis Problem.

Appointments.

BLOOMFIELD, Miss A., M.D. Edin., F.R.C.S. Eng., has been appointed Assistant Surgeon to the South London Hospital for Women.

BORTHWICK, G. A., M.D., Ch.B. Edin., Medical Officer to the Port of Plymouth.

PEMBERTON, H. S., M.B., Ch.B. Liverp., M.R.C.P.Lond., Honorary Physician to the David Lewis Northern Hospital, Liverpool.

SIMPSON, J. V. A., M.D. Lond., D.P.H. Camb., Deputy Medical Officer of Health, Torquay.

WATSON, F. H., M.B., Ch.B. St. And., Medical Officer in Charge of the Maternity Hospital and Clinics, Portsmouth.

Certifying Surgeons under the Factory and Workshop Acts: PORTER, J. H., M.R.C.S., L.R.C.P. Lond. (Littlehampton); KENDALL, G. M. (Epsom).

Vacancies.

For further information refer to the advertisement columns.

Birmingham General Hospital.—Director of V.D. Dept. £600.
Birmingham, Highbury, Uffculme and Sorrento Hospitals.—Med. Supt. £800.
Board of Control. Victoria-street, S.W.—Inspectors. £500 and £400 respectively.
Bristol, Cossham Memorial Hospital, Kingswood.—H.S. £150.
Bristol General Hospital.—Two H.P.'s, H.S., Res. Obstet. O., and Cas. H.S. Each £125.
Canterbury, Kent and Canterbury Hospital.—Res. M.O. £175.
East Suffolk Administrative County.—Asst. Tub. O. £500.
Edinburgh, Chalmers' Hospital.—Surg. O.
Elizabeth Garrett Anderson Hospital, Euston-road.—Hon. Clin. Assts. Also Asst. M.O., V.D. Dept. £1 1s. per attendance.
Evelina Hospital for Children, Southwark, S.E.—Hon. Phys.
Finsbury Metropolitan Borough.—Asst. M.O.H. £600.
Halifax Royal Infirmary.—Hon. Ophth. S. and Hon. Radiologist.
Hertford County Hospital.—Hon. Asst. S.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Ear, Nose, and Throat S.
Hull Royal Infirmary.—Asst. H.S. £150.
Leeds City.—Asst. M.O.H. £750.
Leicester City Education Committee.—Asst. Sch. M.O. £600.
Leicester Royal Infirmary.—H.S. £150.
Manchester, Ancoats Hospital.—Two H.S.'s. £100.
Manchester Corporation.—Asst. Tub. O. £621.
Melton, Suffolk, St. Audry's Hospital.—Med. Supt. £1000.
Metropolitan Ear, Nose, and Throat Hospital, Fitzroy-square, W.—Asst. S. H.S. £150. Also Clin. Assts.
National Hospital for Diseases of the Heart, Westmoreland-street, W.—Res. M.O. £150.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Asst. P.
Newcastle-upon-Tyne, University of Durham College of Medicine.—Lectureship on Med. Jurisprudence.
Nottingham Children's Hospital.—Res. H.P. £150.
Portsmouth Royal Hospital.—Sen. H.S. £200. Also Asst. H.S. £150.
Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Two Asst. Res. M.O.'s. Each £80. Also Sen. R.M.O. £100.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—H.P. and H.S. Each £100.
Royal General Dispensary, Bartholomew Close, E.C.—R.M.O. £175.
St. Pancras Dispensary, 39, Oakley-square, N.W.—Hon. Ophth. S.
St. Thomas's Hospital.—P. Also Ophth. S.
Southampton, Royal South Hants and Southampton Hospital.—Jun. H.S. £150.
South London Hospital for Women, South Side, Clapham Common, S.W.—Three H.S.'s and one H.P. Each £50.
University College Hospital Medical School.—Graham Scholarship in Pathology.
Wakefield, West Riding of Yorks.—Temporary M.O. 10 guineas.
West London Hospital, Hammersmith-road, W.—One H.P. and Two H.S.'s. Each £100.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Dinas Mawddwy, Merioneth; Rocester, Staffs.

The Secretary of State for the Home Department proposes to appoint an additional Medical Referee under the Workmen's Compensation Act for the County of Orkney. Applications should reach the Private Secretary, Scottish Office, not later than March 8th.

The Secretary of State for the Home Department gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, for the Districts of the County Courts of Barnard Castle, Darlington, and Richmond (Circuit No. 2); and Leyburn and Northallerton (Circuit No. 15). Application for the posts should be addressed to the Private Secretary, Home Office, and should reach him not later than March 8th.

Births, Marriages, and Deaths.

BIRTHS.

BAKER.—On Feb. 9th, at Camden-road, the wife of H. Searle Baker, M.R.C.S., L.R.C.P., of a son.

BRODRIBB.—On Feb. 10th, at St. Leonards-on-Sea, the wife of Arthur W. Brodribb, M.A., M.B. Oxf., M.R.C.S., of a son.

MARRIAGES.

DAVIES—ROSS.—On Feb. 12th, at All Saints' Church, Wigston, Leicester, John Harold Twiston Davies, B.A. Cantab., M.R.C.S., to Isabel, daughter of Mr. and Mrs. S. A. Ross, of Wigston Magna.

GABRIEL—TYSON.—On Feb. 14th, at St. Margaret's Church, Lowestoft, by the Rev. G. N. Selby-Lowndes, assisted by the Rev. E. C. Morgan (Rector of the Parish), William Bashall Gabriel, M.S., F.R.C.S., younger son of the late E. E. Gabriel and Mrs. Gabriel, Oulton Broad, Suffolk, to Evelyn Maud, daughter of Wilson Tyson, M.D., F.R.C.S., and Mrs. Tyson, Lowestoft.

DEATHS.

BLATHERWICK.—On Feb. 12th, at Colebrne-court, S.W., Henry Blatherwick, M.R.C.S., L.R.C.P., aged 65 years.

CURREY.—On Feb. 16th, at Swarthbeck Point, Ullswater, Robert Henry Currey, F.R.C.S. Edin., M.R.C.S. Eng.

GREEN.—On Feb. 12th, Herbert Melvill Green, M.D., of Clarges-street, W. aged 55 years.

HANNAH.—On Feb. 16th, at Woodlands, Ashton-in-Makerfield, Lancashire, in her 81st year, Elizabeth, widow of the late Nathan Hannah, L.R.C.P. Edin., L.F.P.S. Glasg., M.O.H.

JOHNSTON.—On Jan. 23rd, at Sidney, Vancouver Island, British Columbia, George David Johnston, M.R.C.S., L.R.C.P. Lond., in his 72nd year.

JOYCE.—On Feb. 12th, Thomas Joyce, M.R.C.S., at Wood Knowle, Mayfield, Sussex, in his 90th year.

MARDER.—On Feb. 3rd, at Burley, Lyme Regis, Edward Swan Marder, Major, late R.A.M.C., aged 64 years.

THOMSON.—On Feb. 13th, at Ivy Dene, Sweyn-road, Margate, Robert Thomson, M.D., M.Ch., aged 62 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

DOCTORS* AND ADVERTISING.

BY HAROLD D. L. SPENCE, M.D., M.CH. ONT., M.R.C.S. ENG.,
LATE CHIEF ASSISTANT, SKIN DEPARTMENT, ST. BARTHOLOMEW'S HOSPITAL.

As a profession we express, or there is expressed for us, a certain abstract abhorrence of advertising or advertisement; but a serious difficulty is encountered immediately we proceed to determine just what constitutes advertising.

We know that it has been contended that a doctor named in the Court Circular column of a daily newspaper as being a relative of a bride was advertising, as these notices are charged at so much per line—but it is inconceivable that such an item would be calculated to bring patients to the doctor's door, the ideas being in no way associated. Yet the statement in the more widely read news columns of the same newspaper that Sir Jupiter Pluvius, the astronomer, is progressing satisfactorily after an operation for appendicitis performed by Mr. Joshua Whatnoodle, the very eminent surgeon, is not to be mistaken for advertising, being either news or a gratuitous tribute to worth and achievement. Here is surely what undergraduates term a distinction without a difference—since advertising value is measured by results; and in the commercial field, if I may be permitted to make the comparison, a free advertisement, possessing a unique impersonal quality in the guise of reading matter, may prove invaluable whereas the most expensive space may be utterly wasted.

On the same occasion reference is understood to have been made to the "bulletin," and here complainant was on firmer ground; for this must be the most useful form of professional publicity. The names appended reach millions of newspaper readers in the most favourable setting, the nature of the illness is known, and it seems a reasonable assumption that a wealthy or prominent patient will secure the ablest professional attention in the circumstances. Again we are loftily told that this too is not advertising. Assuming that this is so it is strange that in my scrap-book, containing examples of every conceivable kind of professional publicity from the timid personal item to raging propaganda, I find nothing approximating to the following hypothetical signed bulletin: "Lord Algernon Debrett who was operated upon yesterday for appendicitis became gradually weaker during the afternoon and expired early to-day."

It may be permissible to suggest that whilst there are exceedingly few of us who really object to the publicity which it denotes, there is practical unanimity in the dislike of the unpleasant word *advertising*, which as medically misused has become a term of opprobrium, with a confused suggestion of sky-signs, cure-alls, slogans, and registered trade-marks. Professional publicity has always existed in one form or another. If the modern newspaper is the most important, it is by no means the only medium of publicity employed by the profession; and unless the character of the act is determined less by its own intrinsic quality than by the number in the audience to which it is directed, it is clear that we can as little attack one form of publicity whilst conveniently ignoring the others as we can condemn in one individual what we condone in another—for to do so is to justify a suspicion that our attitude towards publicity is somewhat complex.

The layman, knowing little of the prejudices and rivalries apparently inseparable from so individualistic a calling as our own, is at a loss to understand the good friend who seems threatened with imminent apoplexy upon observing that a colleague is given prominence in the day's news or is pictured with other interesting people in the illustrated page. No one is more jealous of reputation than the barrister or clergyman, but it is open to either to contribute freely to lay publications, and it is never suggested that the standing of the great craft of the law or of the noblest of professions is lowered in consequence. An Ethical Committee very commonly assumes an authority it by no means possesses; and since amongst its members are inevitably those who are apprehensive concerning any departure that seems novel or calculated to disturb the uneventful progress of a placid or semi-vegetative existence it hastens to label as improper anything of which its members personally disapprove. As a matter of fact, the doctor possesses a complete and unassailable right, both legal and moral, to secure publicity in certain ways if he so desires, equally with the barrister and clergyman, provided always that he is careful to respect the rules of professional honour; and once we recognise this elementary truth it becomes no longer necessary to infer, with polite dissimulation, that well-written articles or synopses of lectures complete with name, degrees, and studio-portrait appear in a newspaper accidentally or represent a reluctant capitulation to the persistent importunacy of editorial perseverance or pragmatism.

Long ago John Stuart Mill wrote: "There has been much complaint of late years, both in the world of trade and that of intellect, of quackery, and especially of puffing; but nobody seems to have remarked, that these are the inevitable fruits of immense competition, of a state of society where any voice not pitched in an exaggerated key is lost in the hubbub."

It is impossible to view with complacency the employment by professional men of undignified or blatant methods of publicity, for improper methods not only recoil upon the individual but bring the whole profession into contempt. Equally indefensible, however, is the attitude of the few who would have the doctor, following a large capital outlay for education, premises, and equipment, virtually immure himself within brick walls after the manner of monks and ascetics in the Middle Ages. There is a "mean" here as in all things, and it would be well to recognise this quite frankly. Regulations which repress are always broken, and particularly is this so where it happens that, contrary to the Euclidean philosophy, the part may be greater than the whole.

If the intelligent professional advertiser benefits himself he also benefits the profession. Putting it on the lowest basis, every patient treated by a fully trained and competent practitioner represents an economic saving to the community as well as a score at the expense of lightning cures or osteopathic, spondyloplastic, oscilloclastic, or mechano-therapic clap-trap. The extra-professional advertiser is, however, a very damaging competitor.

Some ten million pounds was spent last year in this country for patent medicines. I invite readers to judge in what proportions this was due to (*a*) the patient's inability to find the right practitioner or specialist; (*b*) the professional habit of pooh-poohing minor ailments, real enough to the patient, and (*c*) the tendency of many doctors to play the pharmaceutical manufacturer's game and recommend a proprietary mixture or pseudo-scientific nostrum, whether through laziness, carelessness, or ignorance of the contents of that excellent work, the British Pharmacopœia.

The General Medical Council have indicated that they hold in special disfavour publicity which tends to disparage the work or abilities of professional colleagues, and a reference to the pages of my scrap-book quickly discloses examples which seem, either directly or through the inference conveyed, to fall foul of this injunction. It is also very interesting to note through contrasts in individual method how practice may be aggressive without raising invidious distinctions or giving rise to the least suggestion of impropriety. The bacteriologist, a complete and unquenchable therapeutic optimist, has long enjoyed a good press; but further, he may distribute his products through the sales organisation of the wholesale chemist, or becoming a "laboratory" join business and profession in a quasi-sanctified union. Thus a liaison is secured with a wider clientèle, using methods which I consider entirely in harmony with correct ethical principle. Let us now compare with this a certain lack of dignity, which we must attribute to the hyperbolic enthusiasm of the descriptive journalist, in the three-quarter column newspaper announcement that a group of "famous doctors" are prepared collectively to supply the "best advice" for a price much less than the individual fees would aggregate, indeed for "a fourth or in some cases a fifth of these sums." Anti-venereal advertising presents unique features, and is at variance with the dictum of the General Medical Council, if only in the unblushing use in lavatory announcements and other literature addressed to the public of the word "expert," perhaps the most abused in our language. If it be questionable form for an individual, whatever his attainments, to describe himself as an "expert" it is equally wrong for two, three, or a half-dozen individuals, constituting the staff of a venereal clinic, to pronounce the word in unison, for this is precisely what it amounts to. Again, those of us who have served for any length of time in venereal hospitals or clinics know that whereas it is the conceit of the attending doctor to increase the attendance on his day, and the *business* of the astute and enterprising caput-counting secretary to increase the attendance on each and every day, it is very often the affair of no one in particular to discover

* For the purposes of this paper the word "doctor" is used in the generic sense understood abroad. It is hoped that nothing written will be construed as referring to any individual, the intention being to present a point of view widely held in a quite impersonal way.

whether a certain patient is or is *not* entitled to free treatment; and so it happens that, the clinic being supported from public funds, the private practitioner is in the extraordinary situation of personally contributing money through taxes towards the support of a clinic, which is not only actively *competing* with him, but is permitted to attract new patients by means which he as an individual is forbidden to employ.

Major abuses of professional etiquette and privilege, including the improper use of advertisement, bear a curiously constant inverse relation to the educational and professional acquirements of the individual, whence it would appear that the most effective method of combating them lies in prophylaxis, through a sustained effort to increase the prestige of the profession, both individual and collective, by raising educational standards. The American Medical Association has demonstrated the useful work that an ably conducted national association with no executive powers can perform in improving the standing of the profession it represents. For twenty years its Council on Education has persevered in a campaign designed to improve the equipment and quality of the American practitioner. So successful has this been that the number of medical colleges has been reduced through the elimination of weaker institutions from 162 to 95, and the students enrolled from 28,142 to 17,432. Of the latter number 91 per cent. attend class "A" schools, requiring before admission two or more years of university attendance and in some cases—e.g., Harvard—a literary degree (B.A.), and conforming in the course of study provided to what is regarded as an "ideal" standard. Endowments have increased in the interval; better hospital relations have been secured; plant, laboratories, and teaching methods continuously improved; and medical education in the United States to-day probably equals, if it does not surpass, that of any other country. Concurrently a very real service has been rendered the profession by its Council on Pharmacy in the systematic investigation of new remedies, and unrelenting war waged against the nostrum evil and towards "cleaning" the advertisement pages not only of the medical but of the lay press, the *Journal* of the American Medical Association itself furnishing a notable example in this particular. I suspect that regular readers of its weekly "Propaganda for Reform" column can be little impressed by colloidal magic, nor are they likely to prescribe greaseless massage cream flavoured with glycerophosphates to be taken internally as a great tonic restorative.

HOUSING STANDARDS: HOW THEY MAY BE RAISED.

A Chadwick public lecture was delivered by Dr. A. K. Chalmers at the Kensington Town Hall on Feb. 15th, Sir James Crichton-Browne being in the chair, and repeated on the 18th at the Goldsmiths' College Lecture Hall, New Cross, Sir William J. Collins presiding. Housing customs in England and Scotland were contrasted, and Dr. Chalmers referred to the initial difficulty in use of terms. A "tenement" in Scotland is usually a building of three or four storeys, with each floor divided into two or three or more "houses"; in England, as a rule, the terms are reversed—the whole building is the "house," and the separate occupancies are the "tenements." As a common term, the house may be regarded as the accommodation required for home and family life. When the house is "made down" to accommodate several families, the primary services—water-supply, drainage, ventilation—originally designed for one family, are all modified and frequently impaired. As a rule the house in England has more rooms than the house in Scotland, but the rooms of the house in Scotland tend to be larger. The one-apartment house is a common feature of Scottish housing. It combines the functions of the living room, scullery, and bedroom. Sculleries were not common in small houses in Scotland until recent housing schemes. After referring to the effect of climate on constructional requirements, the lecturer commented on the early aspects of housing questions and the Chadwick report. He also pointed out the association between indifferent housing, inadequate food, poorly paid labour, and ill-health. Illustrations of association between bad housing and bad health were shown in a series of lantern slides.

Dr. Chalmers dealt with the movement for improving the dwellings of the working classes, showing how the cessation of house building during war years had raised acutely the question of a housing shortage, and led subsequently to a return of the older problem of the improvement of slum areas. Indifferent success had met the efforts to solve the problem in the nineteenth century. As to the question of standards, the Housing Acts and building regulations define these in a degree. The primary requirements of healthy housing are obviously a pure water-supply and an adequate system of refuse removal. Absence of these is commonly associated with other defects in the construction of the house, its design and relationship to other buildings. The Housing Act of 1890 focused and amplified earlier legislation. Building regulations were complementary to the clearance of insanitary areas. Among other purposes they were intended to prevent overbuilding of sites, and to provide free circulation of air and adequate lighting of rooms. The width of the street in relation to height of buildings facing it was an important factor. Efforts to obtain adequate lighting and ventilation of back rooms were detailed. The inflexibility of building regulations was often a drawback, and the desire in New York to adapt them to the needs of particular areas by a system of "districting" showed that this was the case in other countries as well as here. The orientation of streets in relation to available sunlight was an important feature of town-planning. There was an advantage in streets running diagonally with the cardinal points of the compass. Dr. Chalmers concluded by showing how density may be measured, and showed the relative value of floor area and height of ceilings in relation to number of persons per room. Under building regulations the gradual enlargement of the room in houses erected might be noticed. There was improvement in the smaller houses, but the tendency to increase the number of rooms at the expense of the floor area of individual rooms, and especially of the area of sleeping apartments, could not be accepted as final.

"POISONED DAMSELS."

To the Editor of THE LANCET.

SIR,—I am bringing out a 10-volume edition of a collection of Sanskrit stories known as the "Kathā Sarit Sāgara," and they are being fully annotated by myself. In one of these stories we read of a king who, when about to attack another king, first sent spies into the country and also despatched "poisoned damsels." It appears that these "poisoned damsels" were brought up from childhood on the poison of snakes until their whole system became full of poison. So much so that any connexion with them, or sometimes even their kiss would kill a man. Some writers have suggested that this may refer to syphilis. Personally, I do not for a minute think it does, but I would like to know, on the best authority, the earliest date that syphilis has been traced in India. I believe it was introduced by the Portuguese at Goa. Are there any records of poisons of any kind, particularly snake venom, being used to cause death either through the touch or by putting it in food, drink, or clothing?—I am, Sir, yours faithfully,

N. M. PENZER.

12, Clifton-hill, St. John's Wood, N.W., Feb. 18th, 1924.

DANGEROUS DRUG RECORDS.

WE have received specimens of a new edition of the Prescribers' Card, issued by the *Chemist and Druggist* (42, Cannon-street, London, E.C. 4) for the use of medical practitioners in prescribing scheduled dangerous drugs. The information given is concise and complete, while the handy size (7 by 3½ in.) of the card makes it suitable for the desk or pocket. The new edition embodies the changes brought about by the Dangerous Drugs and Poisons (Amendment) Act, 1923, and the Regulations issued since the issue of the first edition in 1921. The cards are supplied in quantities of one dozen at 1s. 6d. post free.

THE "MANETOR" COOLING-COMPRESS.

THE "Manetor" consists of small perforated discs of a hygroscopic earth which are joined together in the form of a ribbon or other shape for application to the forehead, neck, wrist, and præcordial and other regions of the body. For use it is soaked in water for a minute or two, the superfluous moisture dried off, and the apparatus applied to the skin, the required coldness being produced by evaporation. The apparatus may prove useful in the sick-room so far as it gives relief to the patient—and it is sometimes very difficult to separate what is physical from what is suggestive—but time is necessary to show whether it can take the place of the ice-pack, Leiter's coil, or other apparatus of the kind. Messrs. Norman Patterson and Co., Ltd., 150, Southampton-row, London, W.C., are the manufacturers.

AT the February meeting of the Council of the Society of Members of the Royal College of Surgeons of England Dr. Sidney C. Lawrence was presented with an illuminated address in appreciation of his services as hon. secretary of the Society for the past 15 years.

Intravenous Treatment of Syphilis.—The new preparation, "Flumerin," which was the subject of an article by Dr. W. R. Snodgrass in THE LANCET of Jan. 19th, is supplied by Messrs. Hynson, Westcott and Dunning, of Baltimore, Maryland, U.S.A. The preparation is put up in boxes containing 12 sealed tubes containing at choice 0·15, 0·2, 0·25, or 0·3 g. powder ready for solution—also in 5 g. ampoules for hospital use.